DOCUMENT RESUME

ED 410 416 CE 074 580

AUTHOR	Crummett, Dan
TITLE	Graphic Arts: Orientation, Composition, and Paste-Up. Third Edition.
INSTITUTION	Multistate Academic and Vocational Curriculum Consortium, Stillwater, OK.
PUB DATE	1997-00-00
NOTE	342p.; For related documents, see CE 074 579-582.
AVAILABLE FROM	Multistate Academic and Vocational Curriculum Consortium, 1500 West Seventh Avenue, Stillwater, OK 74074 (teacher edition, order no. 801901: $34.50; student edition, order no. 801902: $20, 6 or more: $10 each).
PUB TYPE	Guides - Classroom - Learner (051) -- Guides - Classroom - Teacher (052)
EDRS PRICE	EDRS Price MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Art; Behavioral Objectives; Competence; Competency Based Education; Compliance (Legal); Computer Graphics; Computer Oriented Programs; Computer Software; Design; Design Requirements; Desktop Publishing; *Graphic Arts; Learning Activities; Lesson Plans; Microcomputers; Occupational Information; Occupational Safety and Health; Paper (Material); Postsecondary Education; *Printing; Publications; Secondary Education; Task Analysis; Teaching Guides; Teaching Methods; Test Items; Transparencies; Units of Study
IDENTIFIERS	*Typography

ABSTRACT

This document contains teacher and student materials for a course in graphic arts. Ten units of instruction cover the following topics: (1) orientation; (2) shop safety; (3) shop organization; (4) printing processes; (5) paper; (6) typography; (7) typesetting; (8) design principles; (9) paste-up principles and procedures; and (10) proof procedures and legal considerations. The teacher edition contains some or all of the following components of a unit of study: suggested activities, instructor supplements, assignment sheet answers, written test, written test answers, unit evaluation form, and transparency masters. The teacher edition also includes introductory pages that contain, in addition to the general information such as the table of contents, foreword, and acknowledgments, an explanation of the use of the publication, a competency profile, an instructional task analysis, a list of related academic and workplace skills, a tools, equipment and materials list, and a list of 20 references. Each unit in the student edition contains some or all of the following components: objective sheet, information sheet, student supplements, assignment sheets, and job sheets. (KC)

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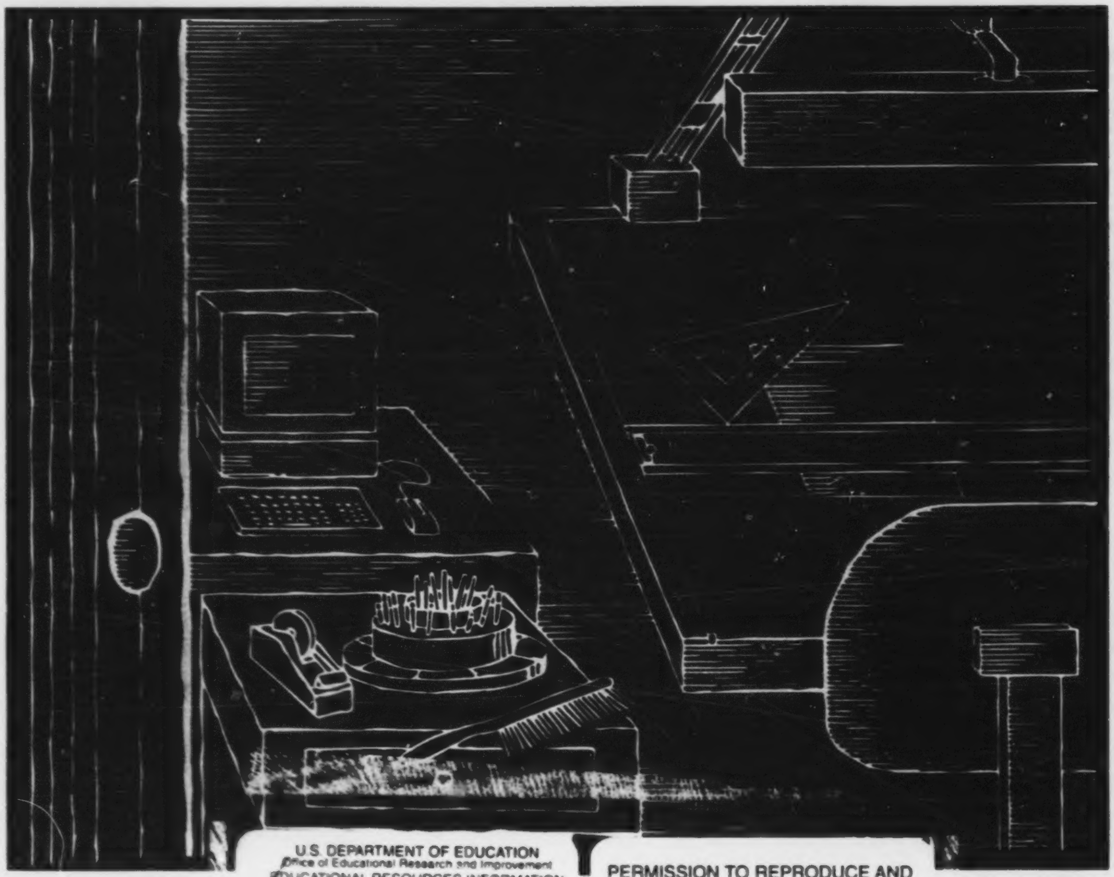
ED 410 416

GRAPHIC ARTS

ORIENTATION COMPOSITION PASTE-UP



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TEACHER EDITION

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MAVCC

Graphic Arts

Orientation, Composition, and Paste-Up

Third Edition

Teacher Edition

Revised by

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Project Coordinated by

Jane Huston

Developed by

The Multistate Academic and Vocational Curriculum Consortium, Inc.

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97-012387 801901

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Printed in the United States of America by the
Oklahoma Department of Vocational and Technical Education
Stillwater, OK 74074-4364

Multistate Academic and Vocational Curriculum Consortium, Inc.
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Stillwater, OK 74074-4364

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Graphic Arts
Orientation, Composition, and Paste-Up
Third Edition

Teacher Edition

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Foreword

Graphic Arts: Orientation, Composition, and Paste-Up is the first in a series of instructional materials on graphic communication developed by the Multistate Academic and Vocational Curriculum Consortium (MAVCC). This publication addresses the new technologies that are changing the printing industry and introduces basic concepts and skills necessary for a student to be employed in an entry-level graphic communication occupation. Additional instructional materials have been developed for *Graphic Arts: Process Camera, Stripping, and Platemaking; Graphic Arts: The Press and Finishing Processes; and Basics of Desktop Publishing.*

Teachers are encouraged to read the suggested activities section for each unit of instruction and to make arrangements for those activities they plan to include as part of their instruction. These materials are designed so that teachers may localize/personalize/supplement the units to fit class interests, individual learning styles, and various instructional methods, and to incorporate new and emerging technologies and processes.

Special attention should be given to the matrix identifying basic academic and workplace skills being reinforced in these instructional materials. A chart which classifies and defines each of the academic and workplace skills and competencies has been included in the teacher edition and reflects key elements from *What Work Requires of Schools: A SCANS Report for America 2000*, a 1991 study by the U.S. Department of Labor; *Workplace Basics: The Skills Employers Want*, a three-year study conducted jointly by the American Society for Training and Development (ASTD) and the United States Department of Labor (DOL); and other national and state sources. These tools have been provided in an effort to help educators identify and document where basic academic and workplace skills are being taught. By reinforcing these skills, the teacher should assist students in improving their employability skills.

As you use these instructional materials, we hope that you will find that they contribute to the quality of your program. If any problems occur or if you have any suggestions for improvement of the materials, please call or write us.

Jean McEntire, Chair
Board of Directors
Multistate Academic and
Vocational Curriculum Consortium

Clark R. Harris
Executive Director
Multistate Academic and
Vocational Curriculum Consortium

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Acknowledgements

Appreciation is extended to those individuals who contributed their time and talent to the revision of *Graphic Arts: Orientation, Composition, and Paste-Up*.

Well-deserved thanks go to the many industry and education representatives who participated as members of MAVCC's graphic arts committees throughout the years. Their assistance in developing and reviewing these instructional materials has been an essential step in MAVCC's development process.

Special recognition is given to Robert Wegener for revising the first edition, and to the authors of the original publication—Karim Farajollahi, Gary Ogle, William Reed, and Kenneth Woodcock.

Thanks are also extended to Debra Gregor and Danny Hoggatt, graphic communication instructors, Central Tech, Drumright, Oklahoma, and to Diane Kessler and Randy Seales, employees of the Graphics Division of the Oklahoma Department of Vocational and Technical Education, for their assistance and support in revising the graphic arts series.

Special appreciation is extended to Jerrie Crummett for her assistance in electronic publishing, and to the employees of the Graphics Division of the Oklahoma Department of Vocational and Technical Education for printing this publication.

A final thank you to Jane Huston for coordinating this project.

Use of Introductory Materials

Introductory materials are included in the teacher edition only and contain useful information to assist administrators and teachers in planning for instruction.

In addition to the general information such as the table of contents, foreword, and acknowledgements, information is included on the following:

1. **Use of this publication**—Explains the components of a unit of instruction and how they should be used as part of the teaching/learning process.

2. **Competency profile**—Provides a record of student performance for each task included in a unit of instruction. This becomes a part of the student's permanent records and should be utilized when directing the student toward employment opportunities.

3. **Instructional/task analysis**—Provides a quick review of contents of the publication; identifies cognitive (knowledge) skills and psychomotor (doing) skills addressed in each unit of instruction.

4. **Related academic and workplace skills list**—Classifies unit tasks (assignment sheets and job sheets) according to related academic and workplace skills and competencies being reinforced. Skill areas reflected by skill groups, sub skills, and definitions have been identified using *What Work Requires of Schools: A SCANS Report for America 2000* and *Workplace Basics: The Skills Employers Want.*

5. **Tools, equipment, and materials list**—Provides a comprehensive list of those items needed to successfully complete the assignment sheets and/or job sheets; assists administrator/teacher in determining program costs.

6. **Reference list**—Provides a comprehensive list of resources used in the development of this publication.

As you use these materials, it is hoped that they will provide useful information to meet a variety of needs.

Use of This Publication

Graphic Arts: Orientation, Composition, and Layout contains ten units of instruction. For the teacher edition, the pages are divided into teacher pages and student pages. These include the following:

Teacher Pages

- Suggested Activities
- Answers to Assignment Sheets*
- Written Test
- Answers to Written Test
- Unit Evaluation Form
- Transparency Masters*

Student Pages

- Objective Sheet
- Information Sheet
- Student Supplements*
- Assignment Sheets*
- Job Sheets*

* *Designates components that may not appear in every unit of instruction*

The complete teacher edition consists of both teacher pages and student pages, as well as the introductory pages. Student pages focus on measurable and observable learning outcomes. Teacher pages provide evaluation tools and suggestions on ways to supplement, localize, personalize, and motivate in order to present a complete teaching/learning process.

MAVCC instructional materials are competency-based, not time-based. Students should be allowed to work until they master each competency.

Units of instruction are designed for use in more than one lesson or class period. Careful study of each unit of instruction by the teacher will help to determine the following:

- Amount of materials that can be covered in each class period
- Skills that must be demonstrated
- Amount of class time needed for teacher demonstrations
- Amount of time needed for student practice
- Supplementary materials, including print and nonprint media and equipment and supplies, that must be ordered.
- Resource people who must be contacted

Teacher Pages

Suggested Activities

This component is included only in the teacher edition. The suggested activities assist teachers during the preparation stage of the teaching/learning process by providing teaching suggestions and a list of supplemental resources. The teacher should read the suggested activities before teaching the units and decide how each objective can best be taught. Time should also be allowed to obtain supplemental materials, prepare audiovisual materials, and contact outside resources. Duties of the teacher will vary according to the particular unit.

To assist a teacher in obtaining suitable supplemental materials, references used in the development of each unit are listed in this component, along with suggested supplemental resources such as books, posters, pamphlets, videotapes, and computer software.

Assignment and Written Test Answers

These are designed to assist the teacher in evaluation of student performances.

Written Test

This component provides criterion-referenced evaluation of every cognitive objective listed in the unit of instruction. The written test may be duplicated for student use. If objectives have been added, deleted, or modified, appropriate changes should be made on the written test. It is recommended that the tests be divided into shorter tests covering three or four objectives at a time and given soon after those objectives have been covered. A selection of test items from the units covered may be used for final tests at the end of each term if desired.

Unit Evaluation Form

This sheet provides teachers with a record of each student's performance on a unit of instruction. It includes space for assignment sheet ratings, job sheet ratings, written test scores, and teacher comments. The unit evaluation form may be duplicated.

Transparency Masters

Transparency masters are used to direct the students' attention to the topic of classroom discussion. They may provide illustrations, charts, schematics, or additional information needed to clarify and reinforce objectives included in the unit of instruction.

Student Pages

Objective Sheet

Each unit of instruction is based on performance objectives which state the goals for successful completion of the course. These performance objectives are stated in two forms: unit objectives which state the expected performance of each student after completion of the unit of instruction, and specific objectives which state what the student must do to reach the unit objective.

The objectives should be stressed throughout the teaching/learning process. This will help answer any questions concerning performance requirements for each instructional unit. The objectives can also help determine teaching strategies and instructional methods. Teachers should prepare for each unit by deciding how each objective can best be taught.

Teachers should feel free to modify, delete, or add objectives in order to meet the needs of the students and community. When objectives are added, the teacher should remember to supply the needed information, assignment and/or job sheets, and written test items.

Information Sheet

The information sheet provides the content essential for meeting the cognitive (knowledge) objectives of the unit. Teachers will find that the information sheet serves as an excellent guide for presenting background knowledge necessary to develop the skills specified in the unit objective. Students should read the information sheet before the information is discussed in class. Space is provided in margins for students and teachers to add notes that supplement, localize, personalize, or provide information for the teaching of each objective.

Use of This Publication

Student Supplements

The information presented in a student supplement may consist of tables, charts, written information, forms, or other information students will need in order to complete one or more of the assignment and/or job sheets. Students are not directly tested over the information presented in a supplement; however, their ability to apply this information may be evaluated in the completion of assignment sheets and/or job sheets.

Assignment Sheets

Assignment sheets provide students with pencil and paper activities that give students the opportunity to make practical application of the knowledge in the information sheet.

Job Sheets

Job sheets are an important segment of each unit. Job sheets provide potential employers with a picture of the skills being taught during training and the performances that might reasonably be expected from an individual who has had this training.

The job sheets provide criteria to objectively evaluate student performance, a list of required equipment and materials, and a step-by-step procedure for performing a psychomotor skill. The teacher should discuss the equipment and materials available in the classroom, laboratory, or shop and demonstrate the procedure prior to having students practice the procedure. When a student is ready to be evaluated, the teacher should follow instructions for evaluating student performance shown below.

Instructions For Evaluating Student Performance

When the student is ready to perform a specific task, obtain a copy of the job sheet which may be found in either the teacher or student edition. Then observe the student performing the procedure.

Process evaluation—Place a mark in the box to the left of each designated checkpoint if the student has satisfactorily achieved the step(s) for each checkpoint area. If the student is unable to correctly complete the procedure, have the student review the materials and try again.

Product evaluation—Once the student has satisfactorily completed the procedure, rate the student product (outcome) using the criteria which have been provided as part of the job sheet. If the student's product is unacceptable, have the student review the materials and submit another product for evaluation.

Sample performance evaluation keys have been provided below. Many other keys are available. Select one rating (grading scale) which best fits your program needs.

Option A

4 - Skilled—Can perform job with no additional training.
3 - Moderately skilled—Has performed job during training program; limited additional training may be required.
2 - Limited skill—Has performed job during training program; additional training is required to develop skill.
1 - Unskilled—Is familiar with process, but is unable to perform job.

Option B

Yes—Can perform job with no additional training.

No—Is unable to perform job satisfactorily.

Graphic Arts
Orientation, Composition, and Paste-Up

Competency Profile

Name: ______________________________

Directions: Evaluate the student using the rating scale below. Write the appropriate number to indicate the degree of competency achieved. The descriptions associated with each of the numbers focus on a level of student performance for each of the tasks listed. The written test scoreline is provided for optional teacher use. It may not be applicable in all cases.

Option A

Rating scale:
4 – Skilled – Can perform job with no additional training.
3 – Moderately Skilled – Has performed job during training program; limited additional training may be required.
2 – Limited Skill – Has performed job during training program; additional training is required to develop skill.
1 – Unskilled – Is familiar with process, but is unable to perform job.
0 – No Exposure – No information or practice provided during training program, complete training required.
NA – Non-applicable.

Option B

Yes – Can perform with no additional training
No – Is unable to perform satisfactorily

Unit I: Orientation

_______ 1. Determine graphic arts employment opportunities.
_______ 2. Interview graphic arts employees.
_______ 3. Visit a printing shop.
_______ 4. ______________________________
_______ 5. ______________________________

_______ Written Test Score

Unit II: Shop Safety

_______ 1. Complete a student safety pledge form.
_______ 2. Survey the shop and identify correct safety practices.
_______ 3. Read a material safety data sheet.
_______ 4. Draw a floor plan and locate safety equipment in your shop.
_______ 5. ______________________________
_______ 6. ______________________________

_______ Written Test Score

Unit III: Shop Organization

_______ 1. Make an organizational chart of the school print shop.
_______ 2. Draw a floor plan locating production areas in the school print shop.
_______ 3. ______________________________
_______ 4. ______________________________

_______ Written Test Score

Unit IV: Printing Processes

_______ 1. Identify printing processes used to reproduce different printed pieces.
_______ 2. Describe the offset printing process.
_______ 3. Test the ink-water principle on an offset plate.
_______ 4. ____
_______ 5. ____

_______ Written Test Score

Unit V: Paper

_______ 1. Identify basic grades of paper.
_______ 2. Choose the correct paper for various jobs.
_______ 3. ____
_______ 4. ____

_______ Written Test Score

Unit VI: Typography

_______ 1. Identify type races in printed material.
_______ 2. Measure type.
_______ 3. Identify formats of type composition.
_______ 4. ____
_______ 5. ____

_______ Written Test Score

Unit VII: Typesetting

_______ 1. Calculate copy fitting.
_______ 2. Mark up copy.
_______ 3. Set type using a phototypesetting machine.
_______ 4. Set type using a microcomputer.
_______ 5. ____
_______ 6. ____

_______ Written Test Score

Unit VIII: Design Principles

_______ 1. Make thumbnail and rough layouts.
_______ 2. Label magazine ads that utilize principles of design.
_______ 3. Identify types of art in printed material.
_______ 4. Complete a drawing of the printer's color wheel.
_______ 5 Identify six basic color combinations in printed material.
_______ 6. ____
_______ 7. ____

_______ Written Test Score

Competency Profile

Unit IX: Paste-Up Principles and Procedures

_______ 1. Prepare a paste-up.
_______ 2. Prepare overlays using clear acetate and ruby film.
_______ 3. Crop a photograph.
_______ 4. Scale copy.
_______ 5. ______________________________
_______ 6. ______________________________

_______ Written Test Score

Unit X: Proof Procedures and Legal Considerations

_______ 1. Read and mark proof copy.
_______ 2. ______________________________
_______ 3. ______________________________

_______ Written Test Score

COMMENTS:

____

____

____

____

Evaluator: ______________________ Date: ______________

* Permission to duplicate this profile is granted.

Graphic Arts
Orientation, Composition, and Paste-Up

Instructional/Task Analysis

Related Information: What the Student Should Know

Application: What the Student Should Be Able to Do

Unit I: Orientation

1. Major areas of specialization in the graphic arts trade
2. Types of organizations that employ printers
3. Personal traits important for successful printers
4. Related skills important for successful printers
5. Advantages/disadvantages of an occupation in graphic arts
6. Determine graphic arts employment opportunities
7. Interview graphic arts employees
8. Visit a printing shop

Unit II: Shop Safety

1. Terms and definitions
2. Proper safety rules to be practiced in the shop
3. Steps in maintaining a safe and orderly shop
4. Toxic chemical safety rules
5. Types of information on a material safety data sheet
6. Kinds of safety hazards
7. Things OSHA expects of an employer
8. Things OSHA expects of an employee
9. Colors of the safety color code
10. Classes of fires
11. Types of fire extinguishers
12. General guidelines for first aid emergencies
13. Complete a student safety pledge form
14. Survey the shop and identify correct safety practices
15. Read a material safety data sheet
16. Draw a floor plan and locate safety equipment in your shop

Related Information: What the Student Should Know	Application: What the Student Should Be Able to Do
Unit III: Shop Organization	
1. Main concerns of successful printing plant management	7. Make an organizational chart of the school print shop
2. Strategies a manager can use to operate a graphic arts business	8. Draw a floor plan locating production areas in the school print shop
3. Job titles and their duties	
4. Production steps of a typical printing job	
5. Items essential to proper job production control	
6. Steps for initiating a printing job	
Unit IV: Printing Processes	
1. Terms and definitions	10. Identify printing processes used to reproduce different printed pieces
2. Major printing processes	11. Describe the offset printing process
3. Principal pre-press steps in offset printing	12. Test the ink-water principle on an offset plate
4. Basic offset printing process	
5. Advantages and uses of major printing processes	
6. Specialized printing processes	
7. Finishing operations	
8. Types of materials on which printing is done	
9. Methods of feeding paper into the press	
Unit V: Paper	
1. Terms and definitions	
2. Basic paper grades and their uses	
3. Basic paper sizes	
4. Factors affecting paper choice	
5. Tests and procedures for determining grain direction	
6. Printing process requirements	
7. Information to specify when ordering paper	

Instructional/Task Analysis

Related Information: What the Student Should Know

Application: What the Student Should Be Able to Do

Unit V: Paper (cont.)

8. Commercial envelope number sizes and their dimensions
9. Rules for handling paper

10. Identify basic grades of paper
11. Choose the correct paper for various jobs

Unit VI: Typography

1. Terms and definitions
2. Parts of a type character
3. Races of type
4. Type families
5. Measurement of type
6. Formats of type composition

7. Identify type races in printed material
8. Measure type
9. Identify formats of type composition

Unit VII: Typesetting

1. Terms and definitions
2. Composition methods
3. Advantages/disadvantages of composition methods
4. Typesetting process
5. Copyfitting
6. Marking up copy

7. Calculate copyfitting
8. Mark up copy
9. Set type using a phototypesetting machine
10. Set type using a microcomputer

Unit VIII: Design Principles

1. Terms and definitions
2. Terms related to color
3. Steps in the design process
4. Things the designer wants from the printer
5. Functions of design
6. Components of printed communication
7. Three stages of layout
8. Principles of design

Related Information: What the Student Should Know

Application: What the Student Should Be Able to Do

Unit VIII: Design Principles (cont.)

9. Types of art and their sources
10. Working with color
11. Kinds of publication design

12. Make thumbnail and rough layouts
13. Label magazine ads that utilize principles of design
14. Identify types of art in printed material
15. Complete a drawing of the printer's color wheel
16. Identify six basic color combinations in printed material

Unit IX: Paste-Up Principles and Procedures

1. Terms and definitions
2. Paste-up tools and materials
3. Basic paste-up steps
4. Registration methods
5. Use of clear acetate and ruby film
6. Processing art for production
7. Kinds of imposition
8. Postal regulations

9. Prepare a paste-up
10. Prepare overlays using clear acetate and ruby film
11. Crop a photograph
12. Scale copy

Unit X: Proof Procedures and Legal Considerations

1. Terms and definitions
2. Reasons for pulling proofs
3. Types of proofs
4. Proofreaders' marks
5. Reading, marking, and correcting galley proofs
6. Legal restrictions
7. Elements of copyright notice
8. Tests for judging the "fair use" of copyrighted material
9. Items that may be copyrighted
10. Items not eligible for copyright

Instructional/Task Analysis

Related Information: What the Student Should Know	**Application: What the Student Should Be Able to Do**
Unit X: Proof Procedures and Legal Considerations (cont.)	
11. Provisions for using photographs of people for advertising purposes	12. Read and mark proof copy

Academic and Workplace Skills
(Classifications and Definitions)

Foundation Skills		
Skill Groups	**Sub Skills**	**Definitions**
Basic Skills	Reading	Comprehending written information and analyzing, summarizing, and applying what has been read to a specific task.
	Writing	Communicating a thought, idea, or fact in written form in a clear, concise manner.
	Arithmetic/ mathematics	Performing basic computations, applying estimating and reasoning skills, and solving practical problems using a variety of mathematical techniques.
	Science	Applying knowledge learned through study or practice that is based on scientific principles, methods, and techniques.
	Listening	Receiving, interpreting, and responding to oral messages and other cues.
	Speaking	Communicating a thought, idea, or fact orally in a clear, concise manner.
Thinking Skills	Creative thinking	Using imagination to generate new ideas.
	Decision making	Specifying goals and constraints, generating alternatives, considering risks, and evaluating and choosing the best alternative.
	Problem solving	Recognizing and defining problems, devising and implementing plan of action, and tracking and evaluating results.
	Seeing things in the mind's eye	Mentally organizing and processing symbols, pictures, graphs, and other information.
	Knowing how to learn	Using efficient learning techniques to acquire and apply new knowledge and skills.
	Reasoning	Applying a rule or principle underlying the relationship between two or more objects when solving a problem.
Personal Management Skills	Responsibility	Exerting a high level of effort towards goal attainment, working hard to become excellent at doing tasks by setting high standards, paying attention to details, and displaying a high level of concentration.
	Self-esteem	Developing self-confidence and creating a positive self-image.
	Career awareness, development, and mobility	Assessing self accurately, setting personal goals, establishing and implementing a plan, and monitoring progress.
	Integrity/honesty	Choosing an ethical course of action when faced with making a decision that may break with personal or societal values and recognizing the impact of violating these beliefs and codes on an organization, self, and others.
	Organizational effectiveness	Adapting to the organization's goals, values, culture, and traditional modes of operation.

Competencies

Skill Groups	Sub Skills	Definitions
Resources	Time	Selecting relevant, goal-related activities, ranking them in order of importance, allocating time, and understanding, preparing, and following schedules.
	Money	Using or preparing budgets, making forecasts, keeping records, and making adjustments to meet objectives.
	Material and facilities	Acquiring, storing and using materials and space efficiently.
	Human resources	Assessing skills and distributing work accordingly; evaluating performance and providing feedback.
Interpersonal Skills	Teamwork	Working cooperatively with others to reach a common goal.
	Coaching	Helping others learn new skills.
	Leadership	Communicating ideas to justify position; accepting responsibility for others; and encouraging, persuading, convincing, or otherwise motivating an individual or group.
	Negotiation	Resolving conflict between two or more individuals through discussion and compromise.
	Customer service	Working and communicating with customers to satisfy their expectations.
	Cultural diversity	Working well with men and women and with a variety of ethnic, social, or educational backgrounds.
Information	Acquisition and evaluation	Identifying need for data, obtaining it from existing sources or creating it, and evaluating its relevance and accuracy.
	Organization and storage	Organizing, processing, and maintaining written or computerized records and other forms of information in a systematic way.
	Interpretation	Selecting and analyzing information and communicating the results to others.
	Processing	Using computers to acquire, organize, analyze, and communicate information.
Systems	Interrelationships	Knowing how social, organizational, and technological systems work and operate effectively.
	Monitoring	Distinguishing trends, predicting impact of actions on system operations, diagnosing deviations in systems' performance, and correcting malfunctions.
	Modification and design	Making suggestions to modify existing systems to improve products or services, and developing new or alternative systems.
Technology	Selection	Choosing procedures, tools, or equipment including computers and related technologies.
	Application	Demonstrating proper procedures for setting up and operating equipment.
	Maintenance and troubleshooting	Preventing, identifying, or solving problems with equipment, including computers and other technologies.

Related Academic and Workplace Skills List
For *Graphic Arts*
Orientation, Composition, and Paste-Up

Task	Skill Group	Sub Skill	Description
Unit I: Orientation			
Determine graphic arts employment opportunities (A.S. 1)	Basic Skills	Reading	Locates pertinent information in written documents to perform task; applies what has been read to specific task
		Writing	Presents answers in a clear and understandable form; writes/prints legibly
	Thinking Skills	Decision making	Evaluates information to make best decision
	Personal Management Skills	Career awareness	Explores career opportunities
	Information	Acquisition and evaluation	Acquires information from existing resources
Interview graphic arts employees (A.S. 2)	Basic Skills	Reading	Follows written directions
		Writing	Presents answers in a clear and understandable form; writes/prints legibly
		Listening	Listens for content
		Speaking	Asks questions to obtain and clarify information
	Personal Management Skills	Career awareness	Explores career opportunities; identifies education and training needs to achieve goals
	Information	Acquisition and evaluation	Acquires information from existing resources
Visit a printing shop (A.S. 3)	Basic Skills	Reading	Applies what has been read to a specific task; follows written directions
		Writing	Records data through questioning and observation; writes/prints legibly
	Thinking Skills	Knowing how to learn	Processes new information as related to workplace
	Personal Management Skills	Organizational effectiveness	Understands the organization's mode of operation
	Systems	Interrelationships	Understands how systems operate and work effectively

Task	Skill Group	Sub Skill	Description
Unit II: Shop Safety			
Complete a student safety pledge form (A.S. 1)	Basic Skills	Reading	Comprehends written information for main ideas; applies information to job performance
	Personal Management Skills	Responsibility	Accepts responsibility for actions
Survey the shop and identify correct safety practices (A.S. 2)	Basic Skills	Reading	Comprehends written information and applies it to a task
		Writing	Records data through surveying; presents answers/conclusions in a clear and understandable form
		Listening	Listens for content
		Speaking	Asks questions to obtain and clarify information
	Thinking Skills	Knowing how to learn	Uses available resources to acquire/improve skills
	Information	Acquisition and evaluation	Acquires information and applies it to workplace
Read a material safety data sheet (A.S. 3)	Basic Skills	Reading	Comprehends written information and analyzes, summarizes, and applies what has been read to a specific task
		Writing	Communicates a fact in written form in a clear, concise manner
	Thinking Skills	Knowing how to learn	Uses efficient learning techniques to acquire and apply new knowledge and skills
	Information	Acquisition and evaluation	Acquires information and applies it to the workplace
Draw a floor plan and locate safety equipment in your shop (A.S. 4)	Basic Skills	Reading	Follows written directions; writes/prints legibly
	Thinking Skills	Creative thinking	Applies personal style to a drawing
Unit III: Shop Organization			
Make an organizational chart of the school print shop (A.S. 1)	Basic Skills	Reading	Follows written directions
		Writing	Composes and creates document; writes/prints legibly
	Systems	Interrelationships	Understands how organizational systems work

Related Academic and Workplace Skills

Task	Skill Group	Sub Skill	Description
Unit III: Shop Organization (cont.)			
Draw a floor plan locating production areas in the school print shop and trace production flow throughout (A.S. 2)	Basic Skills	Reading	Follows written directions; writes/prints legibly
	Thinking Skills	Creative thinking	Applies personal style to a drawing
		Decision making	Generates options/alternatives
	Systems	Modification and design	Makes suggestions to modify existing systems to increase production
Unit IV: Printing Processes			
Identify printing processes used to reproduce different printed pieces (A.S. 1)	Basic Skills	Reading	Follows written directions
		Writing	Presents answers in a clear and understandable form
	Thinking Skills	Reasoning	Extracts rules or principles from written information
Describe the offset printing process (A.S. 2)	Basic Skills	Reading	Follows written directions; analyzes and applies what has been read to specific task
		Writing	Presents answers in a clear and understandable form
Test the ink-water principle on an offset plate (J.S. 1)	Basic Skills	Reading	Comprehends written information and applies it to a task
		Writing	Presents answers in a clear and understandable form
		Science	Applies a scientific principles—chemistry
	Resources	Tools and materials	Uses materials and supplies correctly; keeps work area clean
Unit V: Paper			
Identify basic grades of paper (A.S. 1)	Basic Skills	Reading	Follows written directions
		Writing	Writes/prints legibly
	Thinking Skills	Problem solving	Draws conclusions from observations and demonstrates logical reasoning in reaching a conclusion
Choose the correct paper for various jobs (A.S. 2)	Basic Skills	Reading	Follows written directions

Task	Skill Group	Sub Skill	Description
Unit V: Paper (cont.)			
	Thinking Skills	Problem solving	Demonstrates logical reasoning in reaching a conclusion
	Resources	Material and facilities	Selects appropriate materials to accomplish task
Unit VI: Typography			
Identify type races in printed material (A.S. 1)	Basic Skills	Reading	Follows written directions
		Writing	Writes/prints legibly
	Thinking Skills	Reasoning	Applies rules and principles to a new situation
Measure type (A.S. 2)	Basic Skills	Reading	Follows written directions
		Math	Takes measurements using common measuring device
Identify formats of type composition (A.S. 3)	Basic Skills	Reading	Follows written directions
		Writing	Writes/prints legibly
	Thinking Skills	Reasoning	Applies rules and principles to a new situation
Unit VII: Typesetting			
Calculate copyfitting (A.S. 1)	Basic Skills	Reading	Follows written directions; comprehends written information and applies it to a task
		Math	Applies computation skills as they are used on job; calculates measurement using standard measuring procedures
Mark-up copy (A.S. 2)	Basic Skills	Reading	Follows written directions; comprehends written information and applies it to a task
		Writing	Writes/prints legibly
		Math	Calculates measurements using a common measuring device; applies computation skills as they are used on job
Set text type using a phototypesetting machine (J.S. 1)	Basic Skills	Reading	Comprehends written information and applies it to a task; follows written directions; proofs copy
		Math	Calculates measurements using a common measuring device and standard procedures
	Thinking Skills	Reasoning	Applies rules and principles to a new situation

Related Academic and Workplace Skills

Task	Skill Group	Sub Skill	Description
Unit VII: Typesetting (cont.)			
	Resources	Material and facilities	Performs routine tasks related to equipment operation and/or maintenance
	Technology	Application	Chooses equipment and procedures that will produce desired results
Set type using a microcomputer (J.S. 2)	Basic Skills	Reading	Comprehends written information and applies it to a task; follows written directions; proofs copy
		Math	Calculates measurements using a common measuring device and standard procedures
	Thinking Skills	Reasoning	Applies rules and principles to a new situation
	Resources	Material and facilities	Performs routine tasks related to equipment operation and/or maintenance
	Technology	Application	Chooses equipment and procedures that will produce desired results
Unit VIII: Design Principles			
Make thumbnail and rough layouts (A.S. 1)	Basic Skills	Reading	Follows written directions; applies information to job performance
	Thinking Skills	Creative thinking	Uses imagination to generate new ideas
		Decision making	Generates options/alternatives
Label magazine ads that utilize principles of design (A.S. 2)	Basic Skills	Reading	Follows written directions; analyzes and applies what has been read to a specific task
		Writing	Writes/prints legibly
	Thinking Skills	Reasoning	Extracts rules or principles from written information
Identify types of art in printed material (A.S. 3)	Basic Skills	Reading	Follows written directions
	Thinking Skills	Reasoning	Applies rules and principles to a new situation
Complete a drawing of the printer's color wheel (A.S. 4)	Basic Skills	Reading	Follows written directions
Identify six basic color combinations in printed material (A.S. 5)	Basic Skills	Reading	Follows written directions; analyzes and applies what has been read to a specific task

Task	Skill Group	Sub Skill	Description
Unit VIII: Design Principles (cont.)			
	Thinking Skills	Reasoning	Applies rule and principles to a new situation
Unit IX: Paste-Up Principles and Procedures			
Prepare a paste-up (J.S. 1)	Basic Skills	Reading	Follows written directions; comprehends written information and applies it to a task
	Resources	Material and facilities	Organizes work space for optimum efficiency and productivity; uses materials and supplies correctly
Prepare overlays using clear acetate and ruby film (J.S. 2)	Basic Skills	Reading	Follows written directions; comprehends written information and applies it to a task
	Resources	Material and facilities	Organizes work space for optimum efficiency and productivity; uses materials and supplies correctly
Crop a photograph (J.S. 3)	Basic Skills	Reading	Follows written directions; comprehends written information and applies it to a task
	Resources	Material and facilities	Organizes work space for optimum efficiency and productivity; uses materials and supplies correctly
Scale copy (J.S. 4)	Basic Skills	Reading	Follows written directions; comprehends written information and applies it to a task
		Math	Applies computation skills as they are used on job; calculates measurements using standard measuring procedures
Unit X: Proof Procedures and Legal Considerations			
Read and mark proof copy (A.S. 1)	Basic Skills	Reading	Follows written directions; adjusts reading strategy to purpose and type of reading; evaluates written information for accuracy
		Writing	Uses appropriate symbols to mark copy

Graphic Arts
Orientation, Composition, and Paste-Up

Tools, Equipment, and Materials List

Black ink
Black paper
Burnishing roller
China marking pencil
Clean-up solvents
Clear acetate film and Rubylith
Computer
Cotton pads (2)
Developed offset plate
Drawing board or light table
Eraser
Fine-tipped black pen
Grid or base sheets
Laser printer
Line gauge
Masking tape
Mechanical films
Nonreproducing light blue pencil or pen
Opaque white paint or correction fluid
Phototypesetting machine
Plain white or coated paper
Preservatives
Processor and chemicals
Proportional scale
Rubber cement
Ruler (metal)
Tissue or tracing paper
T square
Triangle
Trimboard
Type image carrier
Water bottle
Waxer
Work table
X-Acto knife

Graphic Arts
Orientation, Composition, and Paste-Up

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Overview of Graphic Communications. Pittsburgh, PA: Graphic Arts Technical Foundation.

Pocket Pal: A Graphic Arts Production Handbook. New York, NY: International Paper Co., 1983.

Silver, Gerald. A. *Modern Graphic Arts Paste-Up*, 2nd ed. New York, NY: Van Nostrand Reinhold Co., 1995.

Spence, Dr. William P. and Dr. David G. Vequist. *Graphic Reproduction*. Peoria, IL: Chas. A. Bennett Co., Inc., 1980.

The Lithographers Manual, ed. Thomas M. Destree. Pittsburgh, PA: Graphic Arts Technical Foundation, 1994.

ORIENTATION
UNIT I

SUGGESTED ACTIVITIES

A. Obtain additional materials and/or invite resource people to class to supplement/reinforce information provided in this unit of instruction.

(Note: This activity should be completed prior to the teaching of this unit.)

B. Make transparency from the transparency master included with this unit.

C. Provide students with objective sheet.

D. Discuss unit and specific objectives.

E. Provide students with information and assignment sheets.

F. Discuss information and assignments sheets.

(NOTE: Use the transparency to enhance the information as needed.)

G. Integrate the following activities throughout the teaching of this unit.

1. Show the videotape *Graphic Communications: The Key to Your Future* or *Pocket Pal the Movie: An Introduction to Printing*.
2. Invite a guest speaker from the graphic arts industry to talk about opportunities, pay, advantages and disadvantages.
3. Take a field trip to a commercial printing shop or the production facility of a newspaper or magazine.
4. Discuss some of the rapid changes that are taking place in graphic arts technology and future directions this technology will take. (Student Supplement 1)
5. Meet individually with students to evaluate their progress through this unit of instruction, and indicate to them possible areas for improvement.

H. Give test.

I. Evaluate test.

J. Reteach if necessary.

REFERENCES USED IN WRITING THIS UNIT

A. Baird, Russell N. *The Graphics of Communication:* Orlando, FL: Harcourt Brace College Publishers, 1993.

B. Cogoli, John E. *Photo-Offset Fundamentals.* Old Tappan, NJ: MacMillan Publishing Co., 1986.

C. *Overview of Graphic Communications.* Pittsburgh, PA: Graphic Arts Technical Foundation.

D. *Executive Summary: Bridging To a Digital Future—A Vision of Dramatic Change.* Alexandria, VA: Printing Industries of America, Inc., 1996.

E. Spence, Dr. William P. and Dr. David G. Vequist. *Graphic Reproduction.* Peoria, IL: Chas. A. Bennett Co., Inc., 1980.

SUGGESTED SUPPLEMENTAL MATERIAL

A. Booklet—*Exploring Graphic Communications*

Booklet—*Electronic Prepress Essentials*

Booklet—*Understanding Electronic Communications—Printing in the Information Age.*

Available from:

Education Council of the Graphic Arts Industry
Graphic Arts Technical Foundation
4615 Forbes Avenue
Pittsburgh, PA 15213-3796
www.gatf.com/products.html

B. Videotapes (VHS)

1. *Graphic Communications: The Key to Your Future*

   Available from:

   Education Council of the Graphic Arts Industry
   Graphic Arts Technical Foundation
   4615 Forbes Avenue
   Pittsburgh, PA 15213-3796
   www.gatf.com/products.html

SUGGESTED SUPPLEMENTAL MATERIAL

2. *Pocket Pal the Movie: An Introduction to Printing*

Available from:

International Paper Co.
New York, NY

C. Booklets and other information about the U.S. printing industry

Available from:

Printing Industries of America, Inc.
1-800-742-2666

ORIENTATION
UNIT I

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

The student should list several graphic arts jobs and give a valid reason for selecting a preference.

Assignment Sheet #2

Answers to interview questions should be provided in a clear, concise manner.

Assignment Sheet #3

The student should be able to briefly describe the location of the nine graphic arts phases and explain why that location is appropriate.

ORIENTATION
UNIT I

TEST

Name ____ Score ________

1. Select major areas of specialization in the graphic arts trade by placing an "X" in the appropriate blanks.

_____a. Folding, binding, and finishing

_____b. Graphic arts photography

_____c. Printing

_____d. Welding

_____e. Proofreading

_____f. Platemaking

2. Name six types of organizations that employ printers.

a. ____

b. ____

c. ____

d. ____

e. ____

f. ____

3. Select true statements concerning personal traits important for successful printers by placing an "X" in the appropriate blanks.

_____a. Ability to listen to and follow instructions well

_____b. Ability to disregard constructive criticism

_____c. Dependability

_____d. Ability to work well with others

_____e. Unwillingness to continue education

_____f. Ability to get to work on time frequently

TEST

4. Select related skills important for successful printers by placing an "X" in the appropriate blanks.

_____a. Accuracy

_____b. Ability to work without direct supervision

_____c. Ability to type

_____d. Desire for perfection

5. Distinguish between the advantages and disadvantages of an occupation in graphic arts by placing an "A" next to advantages and a "D" next to disadvantages.

_____a. Variety of challenging tasks

_____b. Close work confinement

_____c. Open job market

_____d. Pressure of work deadlines

_____e. Sense of pride and satisfaction

_____f. Rigid standards for accuracy

_____g. Long hours during peak production periods

_____h. Most good employment opportunities are confined to metropolitan areas

*Permission to duplicate this test is granted.

ORIENTATION
UNIT I

ANSWERS TO TEST

1. a, b, c, e, f

2. Any six of the following:

   a. Commercial printing plants
   b. In-house printing plants
   c. Newspapers
   d. Magazine publishers
   e. Book publishers
   f. Yearbook publishers
   g. Greeting card publishers
   h. Business form printers
   i. Financial and legal printers
   j. Packaging manufacturers
   k. Speciality shops
   l. Advertising agencies and public relations firms
   m. Printing supply firms
   n. Printing machinery companies
   o. Paper merchants
   p. State/Federal agencies
   q. Universities/Colleges

3. a, c, d

4. a, b, d

5.

a.	A	e.	A
b.	D	f.	D
c.	A	g.	D
d.	D	h.	D

ORIENTATION
UNIT I

UNIT EVALUATION FORM

Student Name ______________________ Unit Rating __________

Assignment Sheet Ratings

Assignment Sheet #1—Determine Graphic Arts Employment Opportunities Rating __________

Comments: ____

____

Assignment Sheet #2—Interview Graphic Arts Employees Rating __________

Comments: ____

____

Assignment Sheet #3—Visit a Printing Shop Rating __________

Comments: ____

____

Written Test Scores

Pretest _____ Posttest _____ Other _____

Other ____

____

Teacher Signature ______________________ Date __________

Student Signature ______________________ Date __________

***Permission to duplicate this form is granted.**

Graphic Arts Specializations

- Sales, customer service
- Writing, design, and layout
- Desktop publishing
- Proofreading
- Paste-up
- Graphic arts photography
- Stripping and imposition
- Platemaking
- Printing
- Folding, binding, finishing

SHOP SAFETY
UNIT II

SUGGESTED ACTIVITIES

A. Obtain additional materials and/or invite resource people to class to supplement/reinforce information provided in this unit of instruction.

B. Make transparencies from the transparency masters included with this unit.

C. Provide students with objective sheet.

D. Discuss unit and specific objectives.

E. Provide students with information and assignment sheets.

F. Discuss information and assignment sheets.

(NOTE: Use the transparencies to enhance the information as needed.)

G. Integrate the following activities throughout the teaching of this unit:

1. Stress laboratory safety in all areas of activity.
2. Lead students on a tour of the shop and point out mechanical, fire, chemical, light and noise hazards.
3. Invite a representative from the fire department or OSHA to speak on shop safety. Obtain and post an OSHA poster #2203 in the classroom.
4. Discuss local, state and federal safety regulations and Right-To-Know laws. Distribute and discuss Student Supplement 1.
5. Relate your personal experiences concerning dangerous situations caused by lack of safety.
6. Discuss color coding as it relates to the shop area.
7. Show types of fire extinguishers and their functions.
8. Discuss emergency procedures that have been adopted by your school.
9. Demonstrate emergency first aid procedures.
10. Meet individually with students to evaluate their progress through this unit of instruction, and indicate to them possible areas for improvement.

SUGGESTED ACTIVITIES

H. Give test.

I. Evaluate test.

J. Reteach if necessary.

REFERENCES USED IN WRITING THIS UNIT

A. Cogoli, John E., *Photo-Offset Fundamentals*. Old Tappan, NJ: MacMillan Publishing Co., 1986.

B. Dennis, Ervin A., *Lithographic Technology*. Albany, NY: Delmar Publishers, 1997.

C. *The Lithographers Manual*, Ed. Thomas M. Destree. Pittsburgh, PA: Graphic Arts Technical Foundation, 1994.

SUGGESTED SUPPLEMENTAL MATERIAL

Text—Strock, Louis D., *Safety Practices for the Graphic Arts*. Pittsburgh, PA: Graphic Arts Technical Foundation.

Slide set—*Understanding the OSHA Hazard Communication Standard*

Available from:

Education Council of the Graphic Arts Industry
Graphic Arts Technical Foundation
4615 Forbes Avenue
Pittsburgh, PA 15213-3796
www.gatf.lm.com/products.html

SHOP SAFETY
UNIT II

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

The student should complete the safety pledge form.

Assignment Sheet #2

The student should answer all questions as they pertain to safety equipment and procedures in the school shop.

Assignment Sheet #3

1. Miracle "V-2020" Concentrate
2. Ethylene glycol, alkaline phosphates and silicates
3. Eye and skin irritation
4. Heavier
5. 215-220°F
6. Class IIIB
7. Flush with water for 15 minutes. Contact physician.
8. Yes
9. Protective gloves, eye protection
10. Keep containers closed when not in use.

Assignment Sheet #4

The student floor plan should accurately represent the school shop with all nine of the locations correctly located and properly identified. Labels should be checked carefully to test the student's ability to follow instructions. Neatness should also be considered.

SHOP SAFETY
UNIT II

TEST

Name_______________________________________ Score ____________________

1. Match the terms on the right with the correct definitions.

_____a. Immediate, temporary care given the victim of an accident or sudden illness until services of a physician can be obtained

_____b. State or condition of being safe; freedom from danger, risk, or injury

_____c. Any suddenly occurring, unintentional event which causes personal injury or property damage

_____d. Federal agency established to ensure safe and sanitary working conditions for employees

_____e. Written or printed material concerning a hazardous chemical

_____f. Materials or liquids that catch fire easily

_____g. A potential source of danger

_____h. Statutory right of access to every public record of a state or federal agency

1. Accident
2. Combustibles
3. First aid
4. Hazard
5. Material Safety Data Sheet
6. Occupational Safety and Health Administration
7. Right-To-Know
8. Safety

2. Select true statements concerning the proper safety rules to be practiced in the shop by placing an "X" next to the true statements.

_____a. You may keep equipment running when you leave if you are only going to be gone for a short time.

_____b. Remove ties, scarves, loose clothing, and jewelry before operating a press or any power equipment.

_____c. Use the correct tools and equipment when doing a job.

_____d. Do not stop a machine before reaching in near the moving parts because stopping it will waste time.

_____e. Ear plugs are never needed.

TEST

_____f. Horseplay is permitted in the classroom but not in the shop.

_____g. Do not sit or lean on light tables.

_____h. It is all right to use unfamiliar equipment.

_____i. Conduct yourself in a manner conducive to safe shop practices.

3. Complete the following sentences by placing the following words in the correct spaces.

Cleanup
Combustible
Floors
Housekeeping
Machinery
Materials
Tools
Unsafe

a. Report any __________ condition in the shop immediately.

b. Arrange all __________ and equipment to permit safe and efficient operation.

c. Keep __________ and supplies safely stacked and stored.

d. Keep all __________ and accessories in cabinets or tool racks.

e. Dispose of or store all _________ materials in safe containers.

f. Keep all __________ clean and free of debris at all times.

g. Check that adequate __________ equipment and cleaning materials are on hand to ensure that maximum cleaning efficiency can be maintained.

h. Participate in daily __________ periods.

4. List five examples of personal protective equipment which might be required in a print shop.

a. ____

b. ____

c. ____

d. ____

e. ____

TEST

5. Select true statements concerning toxic chemical safety rules by placing an "X" next to the true statements.

_____a. Work in a well-ventilated area.

_____b. Wear protective gloves and aprons when handling chemicals.

_____c. Safety goggles are not needed.

_____d. Use unlabeled products only if you know what is in the container.

_____e. Store chemicals on the highest shelves.

6. List four types of information on a Material Safety Data Sheet.

a. ____

b. ____

c. ____

d. ____

7. List the five kinds of safety hazards.

a. ____

b. ____

c. ____

d. ____

e. ____

8. Select true statements concerning things OSHA expects of an employer by placing an "X" next to the true statements.

_____a. Provide a hazard-free workplace and comply with occupational safety and health standards.

_____b. Use properly color-coded signs to warn of danger.

_____c. Report within two weeks to OSHA any accident which is fatal or hospitalizes five or more workers.

_____d. Obtain a Material Safety Data Sheet for each hazardous chemical present in the workplace and make sure the MSDSs are readily accessible to employees.

TEST

9. Select true statements concerning things OSHA expects of an employee by placing an "X" next to the true statements.

_____a. Read the OSHA poster #2203 and comply with its standards.

_____b. Ignore employer safety and health rules.

_____c. Report to OSHA any hazardous working situations which you feel the employer has not attended to properly.

10. Match the colors of the safety color code on the right with their correct designations.

_____a. Designates location of safety and first aid equipment

_____b. Designates caution and marks physical hazards

_____c. Designates dangerous parts of equipment which may cut, crush, shock, or otherwise injure

_____d. Designates location of fire fighting equipment

_____e. Designates caution against starting equipment while it is being worked on or use of defective equipment

_____f. Highlights an area that might otherwise not be noticed

1. Blue
2. Green
3. Ivory
4. Orange
5. Red
6. Yellow

11. Match the classes of fires on the right with the correct definitions.

_____a. Fires that involve flammable liquids

_____b. Fires that involve ordinary combustible materials

_____c. Fires that involve electrical or electronic equipment

_____d. Fires that involve combustible metals

1. Class A
2. Class B
3. Class C
4. Class D

TEST

12. Match the types of fire extinguishers on the right with their uses.

_____a. Stand back several feet, hold upright, and direct at the base of fire, sweeping from side to side; use for class B or class C fires.

_____b. Spray above fire, allowing to fall lightly on the fire; use for class A or class B fires.

_____c. Direct stream at base of fire; use for class A fires only.

_____d. Direct discharge as close to fire as possible, first at the edge of flames, then gradually forward and upward; use for class B or class C fires.

_____e. Direct at the base of the flames, then follow up by directing at remaining materials that are burning; use for class A, class B, or class C fires.

1. Carbon dioxide
2. Dry chemical
3. Foam
4. Halon
5. Pressurized water

13. List the general guidelines for first aid emergencies.

a. ____

b. ____

c. ____

d. ____

e. ____

*** Permission to duplicate this test is granted.**

SHOP SAFETY
UNIT II

ANSWERS TO TEST

1. a. 3
   b. 8
   c. 1
   d. 6
   e. 5
   f. 2
   g. 4
   h. 7

2. b ,c, g, i

3. a. Unsafe
   b. Machinery
   c. Materials
   d. Tools
   e. Combustible
   f. Floors
   g. Housekeeping
   h. Cleanup

4. The following in any order:

   a. Safety glasses
   b. Earplugs
   c. Face shields
   d. Steel-toe shoes
   e. Protective gloves

5. a, b

6. Any four of the following:

   a. Chemical name
   b. Hazardous ingredients/chemical identity
   c. Physical characteristics
   d. Fire and explosion data
   e. Reactivity
   f. Health hazards
   g. Usage, handling, and storage
   h. Special protection and precautions

7. Mechanical
   Fire
   Chemical
   Light
   Noise

8. a, b, d

ANSWERS TO TEST

9. a, c

10.	a.	2	d.	5
	b.	6	e.	1
	c.	4	f.	3
11.	a.	2	c.	3
	b.	1	d.	4
12.	a.	4	d.	1
	b.	3	3.	2
	c.	5		

13. a. Turn off power.
    b. Administer first aid.
    c. Reassure the injured person that everything possible is being done.
    d. Report all accidents and injuries to your instructor or jobsite supervisor.
    e. Make accurate notes about the accident.

SHOP SAFETY
UNIT II

UNIT EVALUATION FORM

Student Name ______________________________ Unit Rating ________

Assignment Sheet Ratings

Assignment Sheet #1—Complete a Student Safety Pledge Form Rating __________

Comments: ____

____

Assignment Sheet #2—Survey the Shop and Identify Correct Safety Practices Rating __________

Comments: ____

____

Assignment Sheet #3—Read a Material Safety Data Sheet Rating __________

Comments: ____

____

Assignment Sheet #4—Draw a Floor Plan and Locate Safety Equipment in Your Shop Rating __________

Written Test Scores

Pretest _____ Posttest _____ Other _____

Other

____

____

Teacher Signature ______________________________ Date __________

Student Signature ______________________________ Date __________

*Permission to duplicate this form is granted

OSHA Poster #2203

job safety and health protection

The Occupational Safety and Health Act of 1970 provides job safety and health protection for workers through the promotion of safe and healthful working conditions throughout the Nation. Requirements of the Act include the following:

Employers: **Each employer shall furnish to each of his employees employment and a place of employment free from recognized hazards that are causing or are likely to cause death or serious harm to his employees; and shall comply with occupational safety and health standards issued under the Act.**

Employees: **Each employee shall comply with all occupational safety and health standards, rules, regulations and order issued under the Act that apply to his own actions and conduct on the job.**

The Occupational Safety and Health Administration (OSHA) of the Department of Labor has the primary responsibility for administering the Act. OSHA issues occupational safety and health standards, and its Compliance Safety and Health Officers conduct jobsite inspections to ensure compliance with the Act.

Inspection: The Act requires that a representative of the employer and a representative authorized by the employees be given an opportunity to accompany the OSHA inspector for the purpose of aiding the inspection.

Where there is no authorized employee representative, the OSHA Compliance Officer must consult with a reasonable number of employees concerning safety and health conditions in the workplace.

Complaint: Employees or their representatives have the right to file a complaint with the nearest OSHA office requesting an inspection if they believe unsafe or unhealthful conditions exist in their workplace. OSHA will withhold, on request, names of employees complaining.

The Act provides that employees may not be discharged or discriminated against in any way for filing safety and health complaints or otherwise exercising their rights under the Act.

An employee who believes he has been discriminated against may file a complaint with the nearest OSHA office within 30 days of the alleged discrimination.

Citation: If upon inspection OSHA believes an employer has violated the Act, a citation alleging such violations will be issued to the employer. Each citation will specify a time period within which the alleged violation must be corrected.

The OSHA citation must be prominently displayed at or near the place of alleged violation for three days, or until it is corrected, whichever is later, to warn employees of dangers that may exist there.

Proposed Penalty: The Act provides for mandatory penalties against employers of up to $1,000 for each serious violation and for optional penalties of up to $1,000 per day may be proposed for failure to correct violations within the proposed time period. Also, any employer who willfully or repeatedly violates the Act may be assessed penalties of up to $10,000 for each such violation.

Criminal penalties are also provided for in the Act. Any willful violation resulting in death of an employee, upon conviction, is punishable by a fine of not more than $10,000 or by imprisonment for not more than six months, or by both. Conviction of an employer after a first conviction doubles these maximum penalties.

Voluntary Activity: While providing penalties for violations, the Act also encourages efforts by labor and management, before an OSHA inspection, to reduce injuries and illnesses arising out of employment.

The Department of Labor encourages employers and employees to reduce workplace hazards voluntarily and to develop and improve safety and health programs in all workplaces and industries.

Such cooperative action would initially focus on the identification and elimination of hazards that could cause death, injury, or illness to employees and supervisors. There are many public and private organizations that can provide information and assistance in this effort, if requested.

More Information: **Additional information and copies of the Act, specific OSHA safety and health standards, and other applicable regulations may be obtained from your employer or from the nearest OSHA Regional Office in the following locations:**

Atlanta, Georgia
Boston, Massachusetts
Chicago, Illinois
Dallas, Texas
Denver, Colorado
Kansas City, Missouri
New York, New York
Philadelphia, Pennsylvania
San Francisco, California
Seattle, Washington

Telephone numbers for these offices, and additional Area Office locations, are listed in the telephone directory under the United States Department of Labor in the United States Government listing.

Washington, D.C.
1981
OSHA 2203

Raymond J. Donovan
Secretary of Labor

U.S. Department of Labor

Occupational Safety and Health Administration
GPO [illegible]

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Classes of Fires and Their Fire Extinguisher Symbols

A

Class A
(Green)

- Ordinary combustibles

B

Class B
(Red)

- Flammable liquids and gases

C

Class C
(Blue)

- Live electrical equipment

D

Class D
(Yellow)

- Combustible metals

Types of Fire Extinguishers

Type of Fire	Approved Type of Extinguisher				
	Pressurized Water	Carbon Dioxide	Multi-Purpose Dry Chemical	Halon Gas	Foam
Class A Fires ORDINARY COMBUSTIBLES • Wood • Paper • Cloth, etc.					
Class B Fires FLAMMABLE LIQUIDS, GREASE • Gasoline • Paints • Oils, etc.					
Class C Fires ELECTRICAL EQUIPMENT • Motors • Switches, etc.					

SHOP ORGANIZATION
UNIT III

SUGGESTED ACTIVITIES

A. Obtain additional materials and/or invite resource people to class to supplement/reinforce information provided in this unit of instruction.

(NOTE: This activity should be completed prior to the teaching of this unit.)

B. Make transparencies from the transparency masters included with this unit.

C. Provide students with objective sheet.

D. Discuss unit and specific objectives.

E. Provide students with information and assignments sheets.

F. Discuss information and assignment sheets.

(NOTE: Use the transparencies to enhance the information as needed.)

G. Integrate the following activities throughout the teaching of this unit:

1. Discuss the chain of command for your school.
2. Invite a panel of managers from different types of printing firms to talk about chains of command so that students may see different organizational structures.
3. Invite a guest speaker to talk about how computers are vital to the profitability of the graphic arts industry.
4. Take a field trip to a printing plant to show how extensively computers are used in job control and production.
5. Meet individually with students to evaluate their progress through this unit of instruction, and indicate to them possible area for improvement.

H. Give test.

I. Evaluate test.

J. Reteach if necessary.

REFERENCES USED IN WRITING THIS UNIT

A. Cogoli, John E. *Photo-Offset Fundamentals.* Old Tappan, NJ: MacMillan Publishing Co., 1986.

B. Dennis, Ervin. *Lithographic Technology.* Albany, NY: Delmar Publishers, 1997.

C. Spence, Dr. William P., and Dr. David G. Vequist. *Graphic Reproduction.* Peoria, IL: Chas. A. Bennett, Co. Inc., 1980.

SUGGESTED SUPPLEMENTAL MATERIAL

A. *Pocket Pal the Movie: An Introduction to Printing*

Available in VHS from:

International paper Co.
New York, NY

B. *Printing*, CS-163

Available in VHS and Beta from:

Morris Video
413 Avenue G, #1
P.O. Box 443
Redondo Beach, CA 90277
1-800-843-3606

C. Electronic prepress training programs

Available from:

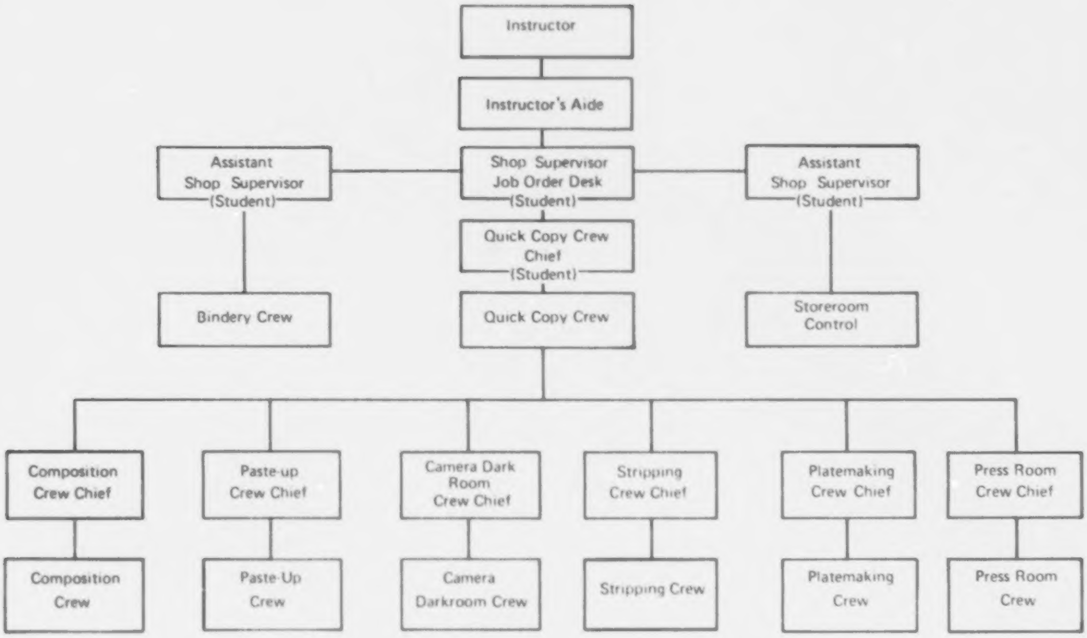
Graphic Arts Technical Foundation
4615 Forbes Avenue
Pittsburgh, PA 15213-3796
www.gatf.com/products.html
or
E-mail: Training@gatf.lm.com

SHOP ORGANIZATION
UNIT III

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

The answer should resemble the schematic below and meet the satisfaction of the instructor.



Assignment Sheet #2

The student should accurately place the production areas of the print shop on a floor plan and correctly indicate production flow. Suggested changes in the layout of the shop should be substantiated with valid reasons.

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GI-T39

SHOP ORGANIZATION
UNIT III

TEST

Name ____ Score ________

1. Name five main concerns of successful printing plant management.

   a. ____

   b. ____

   c. ____

   d. ____

   e. ____

2. Complete the following statements concerning strategies a manager can use to operate a graphic arts business by placing the words below in the correct spaces.

   Chain of command
   Manuals
   Communication
   Policies
   Information
   Tasks

   a. Use organization ____________________ to tell about the firm.

   b. Provide organizational charts that show the ______________ and where people fit into the firm.

   c. Set ____________________ and rules to convey what employees can and cannot do.

   d. Provide job descriptions to define workers' ________________________.

   e. Allow for two-way ______________________ in which the manager talks to employees and employees may talk to the manager.

   f. Use computer recordkeeping systems that permit quick retrieval of ____________________ about current and completed printing jobs.

TEST

3. Match the job titles on the right with the correct description of job duties:

______a. Organizes and supervises production in the shop or plant

______b. Initiate job orders and maintain good customer relations during and after the job

______c. Estimates the total cost of a printing job

______d. Write the copy for printing jobs

______e. Plan and arrange type and visual elements for the printing job

______f. Provides photographs and special photographic illustrations for jobs

______g. Provide special art and illustrations for printing jobs

______h. Copyfit and mark the type, style, and size designations for printing jobs

______i. Compose or set type according to mark-up specifications

______j. Assemble elements of a layout for reproduction

______k. Read the proofs at various stages of production to make sure there are no mistakes

______l. Provide the film negative of the printing job

______m. Tape the negatives in their proper place on the printing mask or flat

______n. Expose the plate and develop it so it is ready for the press

______o. Prepare press for operation and run the finished plate on the press

______p. Help press operator load paper table and unload delivery table

1. Artists
2. Billing personnel
3. Bindery personnel
4. Camera operators
5. Copywriters
6. Design personnel
7. Estimator
8. Feeder and helper
9. Filing personnel
10. Manager
11. Mark-up personnel
12. Paste-up personnel
13. Photographer
14. Platemakers
15. Press operators
16. Proofreaders
17. Sales and customer service representatives

TEST

_____q. Complete bindery work, such as collating, folding, and stitching

_____r. Pack, label, and deliver completed jobs

_____s. File flats and plates in customer job files

_____t. Make out invoices and bill customers for completed work

18. Shipping personnel

19. Strippers

20. Desktop publishing personnel

4. Arrange in proper sequence the production steps of a typical printing job. (Some answers can receive two numbers.)

_____a. Presswork

_____b. Stripping

_____c. Proofreading

_____d. Sales and estimate

_____e. Billing

_____f. Binding and finishing

_____g. Quality control

_____h. Paste-up

_____i. Desktop publishing

_____j. Mark-up

_____k. Job order

_____l. Copywriter

_____m. Pre-press proofing

_____n. Packaging, shipping, and delivery

_____o. Design

_____p. Platemaking

_____q. Proofreading

_____r. Camera

TEST

5. List three items essential to proper job production control.

a. ____

b. ____

c. ____

6. Arrange in proper sequence the steps for initiating a printing job.

_____a. Enter job in log book or computer program and assign number.

_____b. Fill out complete job order form.

_____c. Put folder in proper station of material job flow file.

_____d. Mark material folder, insert job order and job material.

*Permission to duplicate this test is granted.

SHOP ORGANIZATION
UNIT III

ANSWERS TO TEST

1.
   a. Safety
   b. Cleanliness
   c. Efficiency of operation
   d. Quality
   e. Profit

2.
   a. Manuals
   b. Chain-of-command
   c. Policies
   d. Tasks
   e. Communication
   f. Information

3.

a.	10	f.	13	k.	16	p.	8
b.	17	g.	1	l.	4	q.	3
c.	7	h.	11	m.	19	r.	18
d.	5	i.	20	n.	14	s.	9
e.	6	j.	12	o.	15	t.	2

4.

a.	14	f.	15	k.	2	p.	13
b.	11	g.	16	l.	3	q.	7 or 9
c.	7 or 9	h.	8	m.	12	r.	10
d.	1	i.	6	n.	17		
e.	18	j.	5	o.	4		

5. Any three of the following:

   a. Job ticket
   b. Log book with job numbers and/or computer spread sheet program
   c. Identified job material folder (or envelope)
   d. Computer for tracking job through printing plant

6.

a.	2	b.	1
c.	4	d.	3

GI-T45

SHOP ORGANIZATION
UNIT III

UNIT EVALUATION FORM

Student Name ______________________________ Unit Rating _____________

Assignment Sheet Ratings

Assignment Sheet #1—Make an Organizational Chart of the School Print Shop Rating __________

Comments: ____

____

Assignment Sheet #2—Draw a Floor Plan Locating Production Areas in the School Print Shop and Trace Production Flow Throughout Rating __________

Comments: ____

____

Written Test Scores

Pretest _____ Posttest _____ Other _____

Other ____

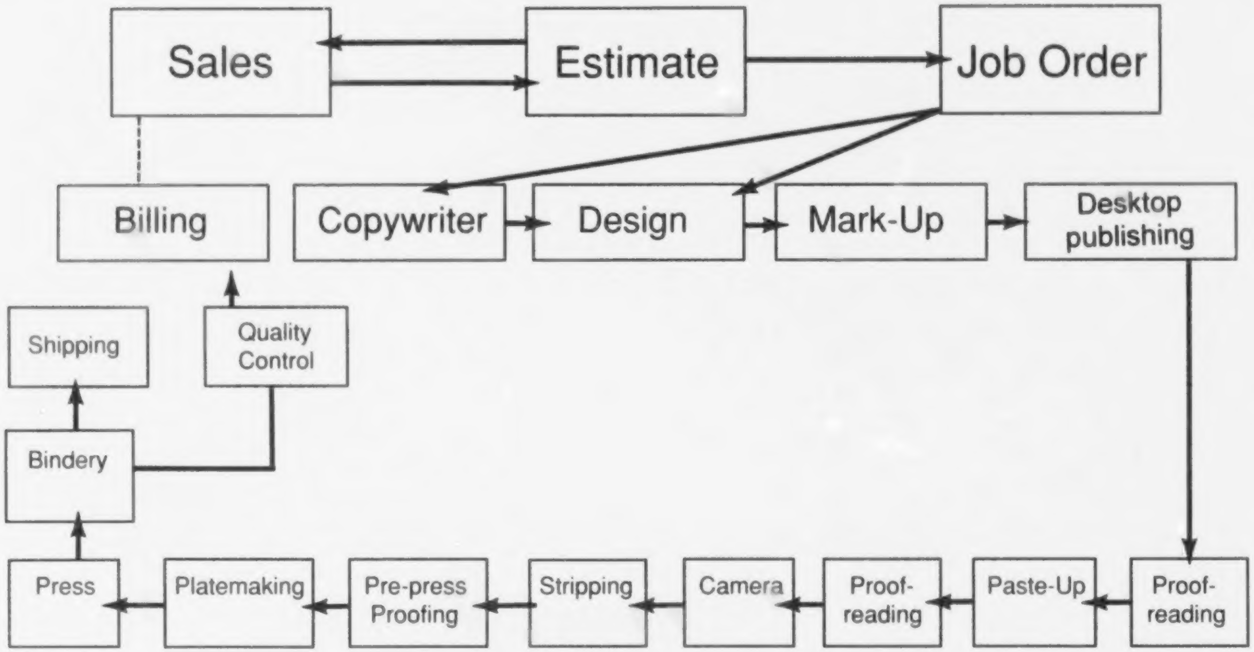
____

Teacher Signature ________________________________ Date ____________

Student Signature ________________________________ Date ____________

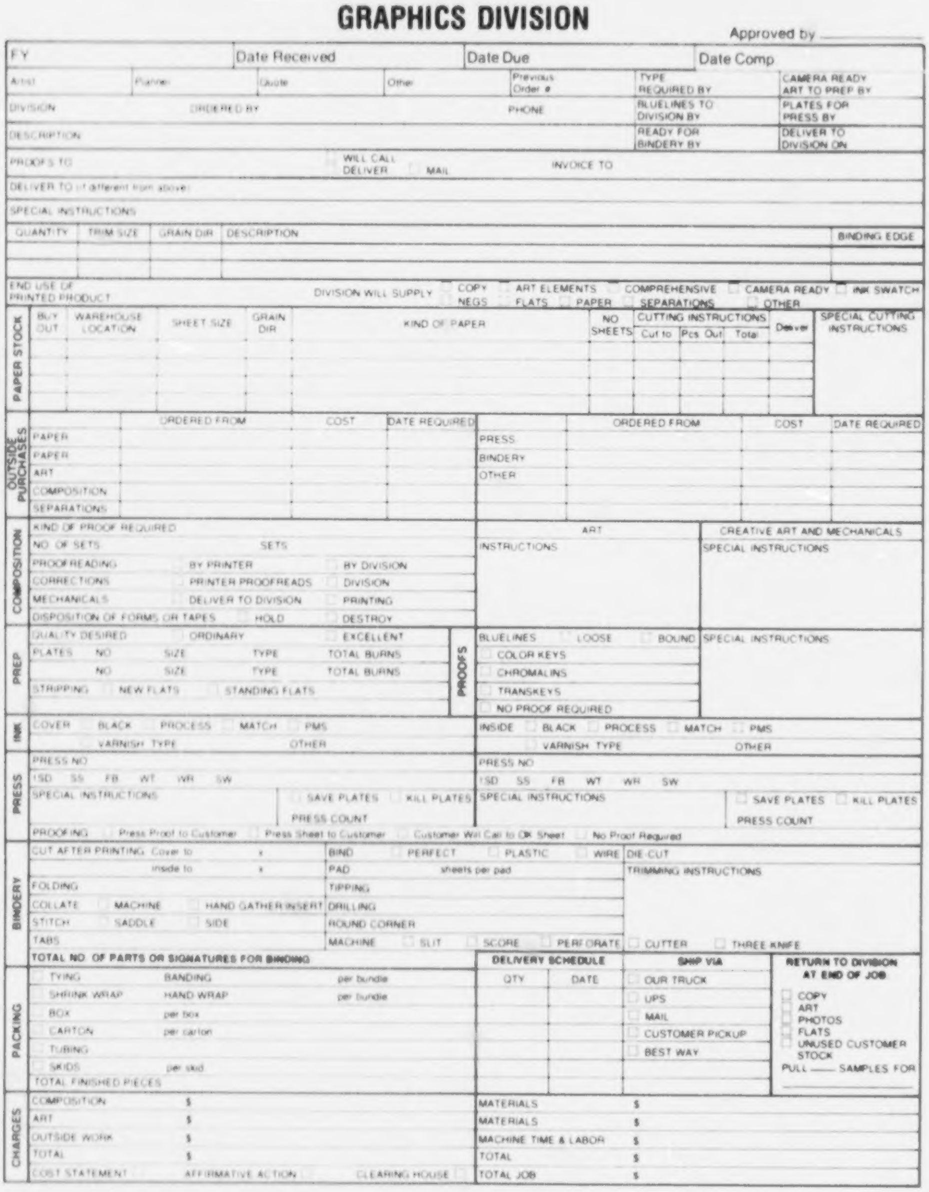
*Permission to duplicate this form is granted

Production Flow Chart



Sales
Estimate
Job Order
Billing
Copywriter
Design
Mark-Up
Desktop publishing
Shipping
Quality Control
Bindery
Press
Platemaking
Pre-press Proofing
Stripping
Camera
Proof-reading
Paste-Up
Proof-reading

Essential Items in Job Production Control



GRAPHICS DIVISION

Approved by ______

FY	Date Received	Date Due	Date Comp

Artist | Planner | Quote | Other | Previous Order # | TYPE REQUIRED BY | CAMERA READY ART TO PREP BY

DIVISION | ORDERED BY | PHONE | BLUELINES TO DIVISION BY | PLATES FOR PRESS BY

DESCRIPTION | READY FOR BINDERY BY | DELIVER TO DIVISION ON

PROOFS TO ☐ WILL CALL ☐ DELIVER ☐ MAIL | INVOICE TO

DELIVER TO (if different from above)

SPECIAL INSTRUCTIONS

QUANTITY	TRIM SIZE	GRAIN DIR	DESCRIPTION	BINDING EDGE

END USE OF PRINTED PRODUCT | DIVISION WILL SUPPLY ☐ COPY ☐ NEGS ☐ ART ELEMENTS ☐ FLATS ☐ PAPER ☐ COMPREHENSIVE ☐ SEPARATIONS ☐ CAMERA READY ☐ OTHER ☐ INK SWATCH

PAPER STOCK

BUY OUT	WAREHOUSE LOCATION	SHEET SIZE	GRAIN DIR	KIND OF PAPER	NO SHEETS	CUTTING INSTRUCTIONS Cut to	Pcs Out	Total	Deliver	SPECIAL CUTTING INSTRUCTIONS

OUTSIDE PURCHASES

	ORDERED FROM	COST	DATE REQUIRED		ORDERED FROM	COST	DATE REQUIRED
PAPER				PRESS			
PAPER				BINDERY			
ART				OTHER			
COMPOSITION							
SEPARATIONS							

COMPOSITION

KIND OF PROOF REQUIRED

NO. OF SETS SETS

PROOFREADING ☐ BY PRINTER ☐ BY DIVISION

CORRECTIONS ☐ PRINTER PROOFREADS ☐ DIVISION

MECHANICALS ☐ DELIVER TO DIVISION ☐ PRINTING

DISPOSITION OF FORMS OR TAPES ☐ HOLD ☐ DESTROY

ART

INSTRUCTIONS

CREATIVE ART AND MECHANICALS

SPECIAL INSTRUCTIONS

PREP

QUALITY DESIRED ☐ ORDINARY ☐ EXCELLENT

PLATES NO SIZE TYPE TOTAL BURNS

NO SIZE TYPE TOTAL BURNS

STRIPPING ☐ NEW FLATS ☐ STANDING FLATS

PROOFS

BLUELINES ☐ LOOSE ☐ BOUND

☐ COLOR KEYS

☐ CHROMALINS

☐ TRANSKEYS

☐ NO PROOF REQUIRED

SPECIAL INSTRUCTIONS

INK

COVER ☐ BLACK ☐ PROCESS ☐ MATCH ☐ PMS

☐ VARNISH TYPE OTHER

INSIDE ☐ BLACK ☐ PROCESS ☐ MATCH ☐ PMS

☐ VARNISH TYPE OTHER

PRESS

PRESS NO | PRESS NO

1SD SS FB WT WR SW | 1SD SS FB WT WR SW

SPECIAL INSTRUCTIONS ☐ SAVE PLATES ☐ KILL PLATES PRESS COUNT | SPECIAL INSTRUCTIONS ☐ SAVE PLATES ☐ KILL PLATES PRESS COUNT

PROOFING ☐ Press Proof to Customer ☐ Press Sheet to Customer ☐ Customer Will Call to OK Sheet ☐ No Proof Required

BINDERY

CUT AFTER PRINTING Cover to x

inside to x

FOLDING

COLLATE ☐ MACHINE ☐ HAND GATHER INSERT

STITCH ☐ SADDLE ☐ SIDE

TABS

BIND ☐ PERFECT ☐ PLASTIC ☐ WIRE

PAD sheets per pad

TIPPING

DRILLING

ROUND CORNER

MACHINE ☐ SLIT ☐ SCORE ☐ PERFORATE

DIE-CUT

TRIMMING INSTRUCTIONS

☐ CUTTER ☐ THREE KNIFE

TOTAL NO. OF PARTS OR SIGNATURES FOR BINDING

PACKING

☐ TYING BANDING per bundle

☐ SHRINK WRAP HAND WRAP per bundle

☐ BOX per box

☐ CARTON per carton

☐ TUBING

☐ SKIDS per skid

TOTAL FINISHED PIECES

DELIVERY SCHEDULE

QTY	DATE

SHIP VIA

☐ OUR TRUCK

☐ UPS

☐ MAIL

☐ CUSTOMER PICKUP

☐ BEST WAY

RETURN TO DIVISION AT END OF JOB

☐ COPY

☐ ART

☐ PHOTOS

☐ FLATS

☐ UNUSED CUSTOMER STOCK

PULL ___ SAMPLES FOR ______

CHARGES

COMPOSITION	$	MATERIALS	$
ART	$	MATERIALS	$
OUTSIDE WORK	$	MACHINE TIME & LABOR	$
TOTAL	$	TOTAL	$
COST STATEMENT ☐ AFFIRMATIVE ACTION ☐ CLEARING HOUSE ☐		TOTAL JOB	$

Sample Job Ticket

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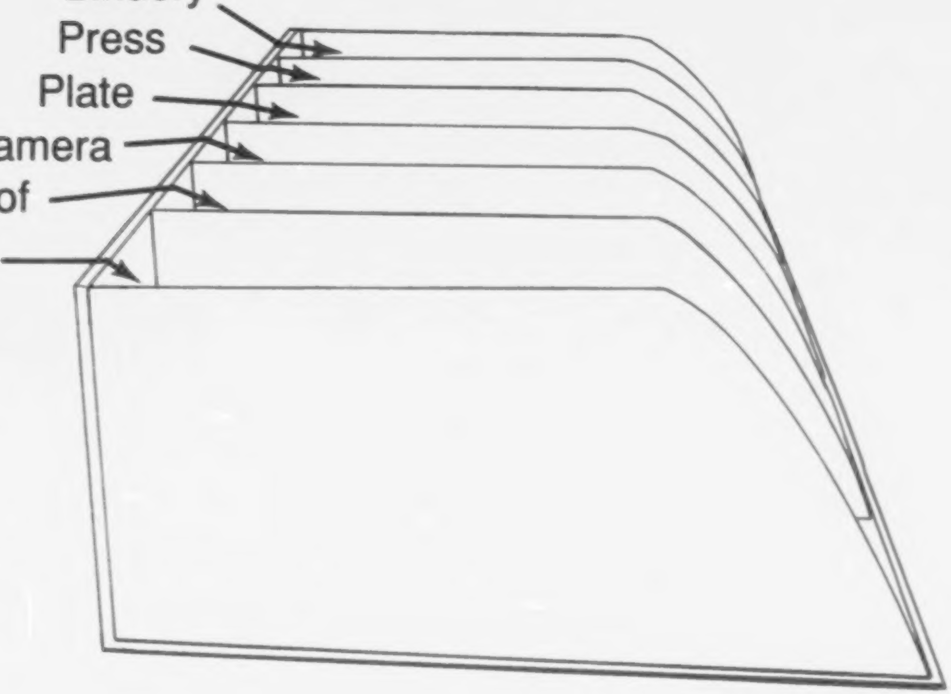
Essential Items in Job Production Control

(Continued)

Log Book

Job Material Folder

Material Job Flow File



Bindery

Press

Plate

Camera

Proof

Composition
Paste-Up

PRINTING PROCESSES
UNIT IV

SUGGESTED ACTIVITIES

A. Obtain additional materials and/or invite resource people to class to supplement/reinforce information provided in this unit of instruction.

(NOTE: This activity should be completed prior to the teaching of this unit.)

B. Make transparency from the transparency master included with this unit.

C. Provide students with objective sheet.

D. Discuss unit and specific objectives.

E. Provide students with information and assignment sheets.

F. Discuss information and assignment sheets.

(NOTE: Use the transparency to enhance the information as needed.)

G. Provide students with job sheet.

H. Discuss and demonstrate the procedures outlined in the job sheet. Evaluate student performance according to criteria provided in job sheet.

I. Integrate the following activities throughout the teaching of this unit:

1. Tour the school and make a list of printing processes used. Ask students if they think these are the best for the purpose.
2. Give a demonstration of printing processes used in your shop.
3. Have students find out what types of printing processes are used by printers in your community.
4. Arrange a field trip to observe as many processes as possible.
5. Meet individually with students to evaluate their progress through this unit of instruction, and indicate to them possible areas for improvement.

J. Give test.

K. Evaluate test.

L. Reteach if necessary.

REFERENCES USED IN WRITING THIS UNIT

A. Baird, Russell N.,. *The Graphics of Communication*. Orlando, FL: Harcourt Brace College Publishers, 1993.

B. Cogoli, John E., *Photo-Offset Fundamentals*. Old Tappan, NJ: MacMillan Publishing Co., 1986.

C. Crow, Wendall C. *Communication Graphics*. Englewood Cliffs, NJ: Prentice-Hall, 1986.

D. *The Lithographers Manual,* Ed. Thomas M. Destree. Pittsburgh, PA: Graphic Arts Technical Foundation, 1994.

E. *Pocket Pal A Graphic Arts Production Handbook*. New York, NY: International Paper Co., 1983.

SUGGESTED SUPPLEMENTAL MATERIAL

Audiovisuals

A. *The Offset Press* (5050) – Slide/cassette presentation.

B. Prepress Production (5031) – 32 color, 35-mm slides, 1986.

A and B available from:

Graphic Arts Technical Foundation
4615 Forbes Avenue,
Pittsburgh, PA 15213-3796
(412) 621-6941
www.gatf.com/products.html
or
E-mail: Training@gatf.lm.com

C. Information about printing

Available from:

Printing Industries of America, Inc.
1-800-742-2666

PRINTING PROCESSES
UNIT IV

TEST

Name ______________________________ Score ____________

1. Match the terms on the right with the correct definitions. Terms and definitions are continued on the next page.

_____a. The process of printing from a flat surface with the image and non-image areas kept separated by chemistry

_____b. A printing process in which the image is etched below the surface of the printing plate

_____c. The process of printing from a raised surface

_____d. All the work involved in preparing printing materials and the press for a particular job

_____e. In gravure printing, a knife-edged blade pressed against the etched printing cylinder to wipe away the excess ink from the non-printing areas

_____f. In offset printing, a smooth rubber surface which transfers the image from the plate to the paper

_____g. That part of the plate which carries the ink to print the image

_____h. That part of the plate which carries only the background

_____i. That part of the offset press which holds the rubber blanket

_____j. That part of the offset press which holds the printing plate

_____k. That part of the offset press which applies pressure for image transfer to the paper

_____l. That part of the offset press that stores and supplies water to the dampening rollers

1. Blanket
2. Blanket cylinder
3. Camera-ready copy
4. Doctor blade
5. Finishing
6. Gravure
7. Image area
8. Impression cylinder
9. Ink fountain
10. Letterpress
11. Makeready
12. Non-image area

TEST

_____m. That part of the offset press that stores and supplies ink to the inking rollers

_____n. A thin sheet of paper, metal, or plastic which carries the image

_____o. A press that prints from a roll of paper

_____p. A printing press that takes individual sheets of paper rather than rolls of paper

_____q. A printing press that prints both sides of the sheet in one pass

_____r. A pasteup ready to be photographed for platemaking

_____s. A variety of different operations and specialties performed in-line with or after printing

13. Offset
14. Perfecting press
15. Plate
16. Plate cylinder
17. Sheet-fed press
18. Water fountain
19. Web-fed press

2. Select true statements concerning major printing processes by placing an "X" next the true statements.

_____a. Offset is the newest but the predominant method used today.

_____b. Gravure is the oldest printing method.

_____c. In letterpress printing, the raised image, when inked, is transferred when pressed against paper.

_____d. In letterpress printing, the entire surface of the plate or cylinder is inked and then wiped clean with a flexible steel scraper called a "doctor blade," leaving ink only in the etched areas which the paper "pulls" to form the printed image.

_____e. In offset printing, both ink and water are applied to the plate during the printing cycle.

_____f. Offset is recognizable by a smooth print.

3. Arrange in order the principal pre-press steps in offset printing.

_____a. Plate developed and put on press

_____b. Negatives stripped into flat

_____c. Negatives "opaqued" to eliminate undesired spots

_____d. Page "shot" on negative film with process camera

_____e. Film developed

TEST

_____f. Original page is created

_____g. Flat placed over plate and exposed to light

4. Select true statements concerning the basic offset printing process by placing an "X" next to the true statements.

_____a. The image area of the plate surface is chemically treated to accept ink and reject water.

_____b. During the press operation ink and water are alternately applied to plate surface.

_____c. The image is wrong-reading on the surface of the offset plate.

_____d. The image is transferred from the plate to the blanket.

_____e. The image on the blanket is right-reading.

_____f. The blanket carries the image to the printing material.

_____g. The printing takes place as the sheet of paper passes between the blanket cylinder and the impression cylinder.

_____h. The impression cylinder forces the paper against the blanket to cause the image to be printed on the sheet.

_____i. A clear, clean image is produced by maintaining the proper ink-water balance.

5. Distinguish among the advantages, disadvantages, and uses of the major printing processes. For each of the following statements, write an "L" for letterpress, a "G" for gravure, or an "O" for offset.

_____a. High cost of plates and cylinders makes short runs uneconomical.

_____b. Used for jobs requiring numbering and on-press die-cutting, perforating, and embossing.

_____c. Proofing is relatively inexpensive and available at any stage.

_____d. Printing plates are relatively inexpensive and require only a short time to make.

_____e. Used for luxurious large-format art and photo books.

_____f. Make ready on presses is time-consuming.

_____g. Lends itself to photographic methods; can reproduce anything that can be photographed.

TEST

_____h. Color variations occur due to problems with ink-water balance.

_____i. Most economic process for long runs.

_____j. Produces the richest blacks and widest tonal range of all printing processes.

_____k. Capable of printing jobs of a variety of sizes in black and white and in color at a relatively low cost.

_____l. Most versatile method of printing; there is equipment for short, medium, and long runs.

6. Match the specialized printing processes on the right with the correct descriptions.

_____a. A printing method in which the image is transferred to the surface to be printed by means of ink squeezed by a squeegee through a stenciled fabric or metal wire screen stretched over a frame

_____b. Method of printing by spraying droplets of ink through computer-controlled nozzles

_____c. A process that starts with copies printed by offset or letterpress with special nondrying inks, and the freshly printed sheets are dusted with resinous powder, then heated, causing the powder to fuse and create a raised surface on the print

_____d. A relief printing method using wrap-around rubber or soft plastic plates and volatile, fast-drying ink

_____e. A printing method in which a low-relief plate is used on a modified offset press. As in conventional offset printing, the ink is transferred from the plate to the paper by being offset from a blanket, but unlike offset printing, no damping system is required

1. Spirit duplication
2. Engraving
3. Flexography
4. Ink jet
5. Letterset
6. Screen printing

TEST

_____f. A copying process produced when static electricity causes a powder to adhere to the charged image area of the copy

_____g. A direct-plate copying process that employs a typed or handwritten stencil mounted on a cylinder filled with ink which flows through the holes onto the paper

_____h. A copying process utilizing a paper spirit master with a carbon image transferring the image to paper when the master is moistened by vapors of duplicating fluid

_____i. Process that reproduces images etched or inscribed into smooth metal

7. Thermography
8. Mimeograph duplication
9. Electrostatic duplication

7. Match the finishing operations on the right with the correct descriptions.

_____a. Applying a thin layer of colored foil to the printed material with a heated stamp or die

_____b. Punching a line of minute holes in a sheet so that a part may be easily torn away

_____c. The process of cutting special shapes into printed sheets, sometimes by dies that look and perform much like a cookie cutter

_____d. Creasing paper so it will fold more easily

_____e. Impressing an image in relief to achieve a raised surface, either over printing or on blank paper

_____f. Printing consecutive numbers on invoices, tickets, etc., with a numbering machine

1. Die-cutting
2. Embossing
3. Foil stamping
4. Numbering
5. Perforating
6. Scoring

TEST

8. Name six types of material on which printing is done.

a. ______________________________

b. ______________________________

c. ______________________________

d. ______________________________

e. ______________________________

f. ______________________________

9. Name the two methods of feeding paper into the press.

a. ______________________________

b. ______________________________

*Permission to duplicate this test is granted.

PRINTING PROCESSES
UNIT IV

ANSWERS TO TEST

1.

a.	13	f.	1	k.	8	p.	17
b.	6	g.	7	l.	18	q.	14
c.	10	h.	12	m.	9	r.	3
d.	11	i.	2	n.	15	s.	5
e.	4	j.	16	o.	19		

2. a, c, e, f

3.

a.	7	e.	3
b.	5	f.	1
c.	4	g.	6
d.	2		

4. a, d, f, g, h, i

5.

a.	G	e.	G	i.	G
b.	L	f.	L	j.	G
c.	L	g.	O	k.	O
d.	O	h.	O	l.	L

6.

a.	6	f.	9
b.	4	g.	8
c.	7	h.	1
d.	3	i.	2
e.	5		

7.

a.	3	d.	6
b.	5	e.	2
c.	1	f.	4

8. Any six of the following:

   a. Paper
   b. Wood
   c. Glass
   d. Cloth
   e. Metal
   f. Rubber
   g. Plastic
   h. Leather

9. In either order:

   a. Sheet feeding
   b. Web feeding

PRINTING PROCESS
UNIT IV

UNIT EVALUATION FORM

Student Name ______________________ Unit Rating __________

Assignment Sheet Ratings

Assignment Sheet #1—Identify Printing Processes Used To Reproduce Different Printed Pieces Rating __________

Comments: ____

____

Assignment Sheet #2—Describe the Offset Printing Process Rating __________

Comments: ____

____

Job Sheet #1--Test the Ink-Water Principle on an Offset Plate Rating __________

Comments: ____

____

Written Test Scores

Pretest _____ Posttest _____ Other _____

Other ____

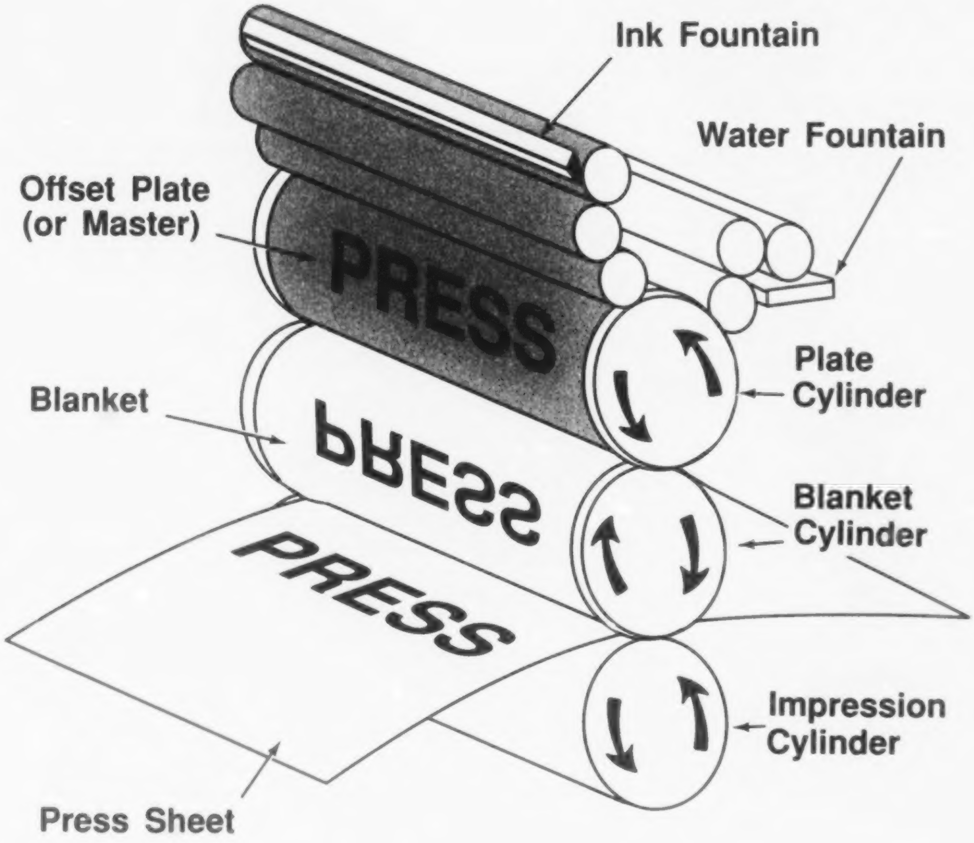
____

Teacher Signature ______________________ Date __________

Student Signature ______________________ Date __________

***Permission to duplicate this form is granted**

The Offset Process



Schematic drawing of an offset press. Printing progresses from plate, to blanket, to paper.

PAPER
UNIT V

SUGGESTED ACTIVITIES

A. Obtain additional materials and/or invite resource people to class to supplement/reinforce information provided in this unit of instruction.

(NOTE: This activity should be completed prior to the teaching of this unit.)

B. Make transparencies from the transparency masters included with this unit.

C. Provide students with objective sheet.

D. Discuss unit and specific objectives.

E. Provide students with information and assignment sheets.

F. Discuss information and assignment sheets.

(NOTE: Use the transparencies to enhance the information as needed.)

G. Integrate the following activities throughout the teaching of this unit:

1. Show the video *Paper is Part of the Picture* or audiovisual slide presentation *Milestones in Papermaking*.

2. Bring to class samples of the basic grades of paper and discuss characteristics of each grade.

3. Ask a paper salesperson to talk about selecting, ordering, and determining the cost of paper.

4. Have students obtain examples of letterheads from different businesses and then look to see which ones have watermarks.

5. Meet individually with students to evaluate their progress through this unit of instruction, and indicate to them possible areas for improvement.

H. Give test.

I. Evaluate test.

J. Reteach if necessary.

REFERENCES USED IN WRITING THIS UNIT

A. Beach, Mark. *Getting It Printed.* Cincinnati, OH: North Light Books, 1993.

B. Crow, Wendall C. *Communication Graphics.* Englewood Cliffs, NJ: Prentice-Hall, 1986.

C. Dennis, Ervin A. *Lithographic Technology.* Albany, NY: Delmar Publishers, 1997.

D. *Pocket Pal: A Graphic Arts Production Handbook.* New York, NY: International Paper Co., 1983.

SUGGESTED SUPPLEMENTAL MATERIAL

A. Videotape—*Paper is Part of the Picture*

Available from:

Strathmore Paper Company
Two Gateway Blvd.
East Granby, CN 06026
1-800-248-0245

B. Slide presentation—*Milestones in Papermaking (5021)*

Available from:

Education Council of the Graphic Arts Industry
Graphic Arts Technical Foundation
4615 Forbes Avenue
Pittsburgh, PA 15213-3796
(412) 621-6941
www.gatf.com/products.html
or
E-mail Training@gatf.lm.com

PAPER
UNIT V

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

1. Student scrapbook should include examples of the following grades of paper:
    a. Writing
    b. Book
    c. Cover
    d. Card stock
    e. Newsprint
    f. Specialty papers

2. Students should note the felt side is smoother than the wire side of the papers.

3. Students should note the paper folds more easily with than against the grain.

Assignment Sheet #2

The student's selections should be from the following grades of paper:

1. Writing
2. Cover
3. Cover
4. Specialty paper
5. Newsprint
6. Book
7. Book

PAPER
UNIT V

TEST

Name ____ Score __________

1. Match the terms on the right with the correct definitions.

_____a. Distinctive design created in paper during manufacture

_____b. Characteristic of paper referring to how much light it reflects

_____c. The direction the fiber runs in a paper

_____d. Properties that affect the ability of the paper to run on the press

_____e. Thickness of a sheet of paper, usually measured in thousandths of an inch

_____f. The ability of a paper to take print adequately without problems

_____g. Wood pulp reduced to wood or cellulose fibers, the basic ingredient of paper

_____h. The property of paper that helps prevent printing on one side form showing on the other

_____i. 500 sheets of paper

_____j. Surface characteristic of paper that affects look, feel, and printability

_____k. Thickness of paper, expressed in sheets per inch

_____l. The smoother side of the paper that was on the felt blanket of the papermaking machine

1. Basic size
2. Basis weight
3. Brightness
4. Bulk
5. Calendaring
6. Caliper
7. Color
8. Felt side
9. Fiber
10. Finish
11. Grain
12. Opacity
13. Printability
14. Ream

TEST

_____m. Paper produced from collected waste paper

_____n. The side of paper next to the screen on the papermaking machine

_____o. The size adopted over time as standard for each type or grade of paper

_____p. The weight in pounds of 500 sheets of paper cut to a given standard size for the grade

_____q. A rolling operation during papermaking that creates the amount of smoothness in paper

_____r. Pigment or shade of paper

15. Runability
16. Watermark
17. Wire side
18. Recycled

2. Match the basic paper grades with their uses.

_____a. Used for newspapers, fliers, circulars

_____b. Used for letterheads, business forms, certificates, checks, fliers, resumes, photocopies

_____c. Used for books, booklets, brochures, magazines, newsletters, fliers, posters, programs, announcements

_____d. Used for covers on booklets, business cards, menus, folders, table tents, tickets, invitations, business reply cards

_____e. Used for file folders, covers, post cards, tags, signs, point of purchase displays

_____f. Used for directories, direct mail pieces, fly leaves, forms, bags, labels, stickers, banners, maps

1. Book
2. Card stock
3. Cover
4. Newsprint
5. Specialty
6. Writing

TEST

3. Match the basic paper sizes with their dimensions.

_____a. 25" by 38"

_____b. 22 ½" by 35" and 25 ½" by 30 ½"

_____c. 24" by 36"

_____d. 20" by 26"

_____e. 24" by 36"

_____f. 17" by 22"

_____g. 22 ½" by 28 ½"

1. Cover
2. Bond
3. Newsprint
4. Bristol
5. Tag
6. Book
7. Index

4. Name eight factors affecting paper choice.

a. ____________________

b. ____________________

c. ____________________

d. ____________________

e. ____________________

f. ____________________

g. ____________________

h. ____________________

5. Describe the four tests and procedures for determining grain direction.

a. ____________________

____

b. ____________________

____

c. ____________________

____

d. ____________________

____

TEST

6. Select true statements concerning printing process requirements by placing an "X" next to the true statements.

_____a. Letterpress papers should be smooth and free from lint and dust.

_____b. Gravure papers should be rough and have a certain amount of absorbency.

_____c. Offset papers require moisture resistance and should have good surface strength and be lint-free.

_____d. Screen printing papers require resistance to change in dimensions under heat drying conditions.

7. List five pieces of information to specify when ordering paper.

a. ____________________

b. ____________________

c. ____________________

d. ____________________

e. ____________________

TEST

8. Match commercial envelope number sizes with their dimensions.

_____a. 6 ¼
_____b. 6 ¾
_____c. 7
_____d. 7 ¾
_____e. Monarch
_____f. Check
_____g. 9
_____h. 10
_____i. 11
_____j. 12
_____k. 14

1. 3 ¾" x 6 ¾"
2. 4 ⅛" x 9 ½"
3. 3 ⅝" x 6 ½"
4. 5" x 11 ½"
5. 4 ½" x 10 ⅜"
6. 3 ½" x 6"
7. 3 ⅞" x 7 ½"
8. 3 ⅝" x 8 ⅝"
9. 3 ⅞" x 7 ½"
10. 4 ¾" x 11"
11. 3 ⅞" x 8 ⅞"

9. List five rules for handling paper.

a. ______________________________
b. ______________________________
c. ______________________________
d. ______________________________
e. ______________________________

*Permission to duplicate this test is granted

PAPER
UNIT V

ANSWERS TO TEST

1.	a.	16	g.	9	m.	18
	b.	3	h.	12	n.	17
	c.	11	i.	14	o.	1
	d.	15	j.	10	p.	2
	e.	6	k.	4	q.	5
	f.	13	l.	8	r.	7

2.	a.	4	d.	3
	b.	6	e.	2
	c.	1	f.	5

3.	a.	6
	b.	7
	c.	5 or 3
	d.	1
	e.	3 or 5
	f.	2
	g.	4

4. Any eight of the following:

a. Grain
b. Weight
c. Size
d. Bulk
e. Opacity
f. Color
g. Finish
h. Price
i. Availability
j. Reproduction quality
k. Durability
l. Chemical and physical properties that affect presswork, folding, and binding
m. Production equipment to be used
n. Suitability for scoring, embossing, die-cutting
o. Psychological factors
p. Postal Service guidelines
q. Mailing costs

ANSWERS TO TEST

5. a. Bending—Hold a sheet first at one edge, then the other; the side producing the greatest sag is the direction of the grain.

   b. Tearing—Tear a sheet from the end and from the side; the cleanest tear is with the grain direction.

   c. Folding—Fold and crease paper sharply in both directions; the smoothest crease is with the grain.

   d. Wetting—Wet sheet; paper rolls with the direction of grain.

6. a, c, d

7. Any five of the following:

   a. Quantity
   b. Size
   c. Grain direction
   d. Weight
   e. Color
   f. Brand name
   g. Texture or finish
   h. Grade

8.

a.	6	e.	7 or 9	i.	5
b.	3	f.	8	j.	10
c.	1	g.	11	k.	4
d.	7 or 9	h.	2		

9. Any five of the following:

   a. Keep paper flat.
   b. Never drop paper cartons.
   c. **Do not** store paper in direct sunlight.
   d. Stack paper on pallets instead of on concrete floors.
   e. Reseal opened reams and cartons.
   f. Allow incoming paper to adjust to temperature and humidity conditions in the plant.
   g. Keep all stock marked; **do not** destroy paper package labels.
   h. Use oldest stock first.
   i. Use proper equipment to lift papers.

PAPER
UNIT V

UNIT EVALUATION FORM

Student Name ______________________________ Unit Rating ____________

Assignment Sheet Ratings

Assignment Sheet #1—Identify Basic Grades of Paper Rating __________

Comments: ____

____

Assignment Sheet #2—Choose the Correct Paper for Various Jobs Rating __________

Comments: ____

____

Written Test Scores

Pretest _____ Posttest _____ Other _____

Other ____

____

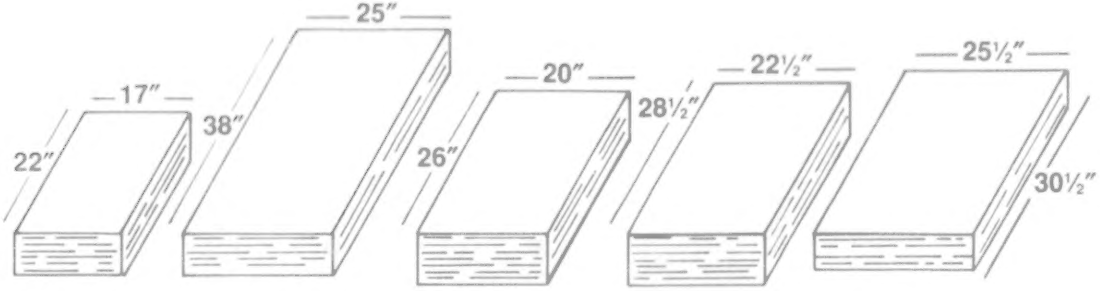
Teacher Signature ___________________________ Date ____________

Student Signature ___________________________ Date ____________

*Permission to duplicate this form is granted

Basis Weight of Standard Paper Sizes

Basis Weight = Weight of 500 Sheets of Basic Size Paper



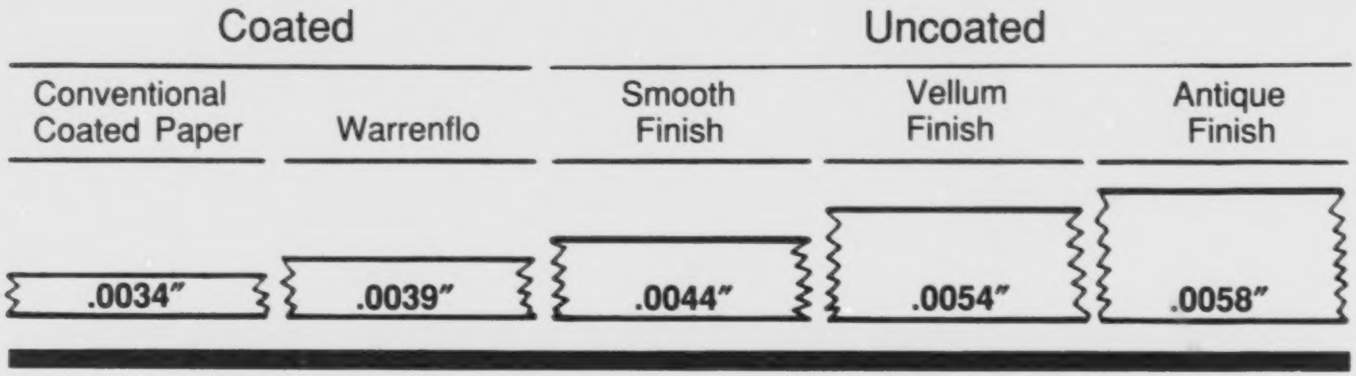
Types of Paper:	Bond	Book-Offset-Text	Cover	Bristol	Index
Basic Size:	17×22	25×38	20×26	22½×28½	25½×30½

(Used with permission of Western Paper Company, Oklahoma City, Oklahoma.)

Caliper of Paper

Enlarged Edge View of Thickness (Caliper)

70 Pound Book Paper

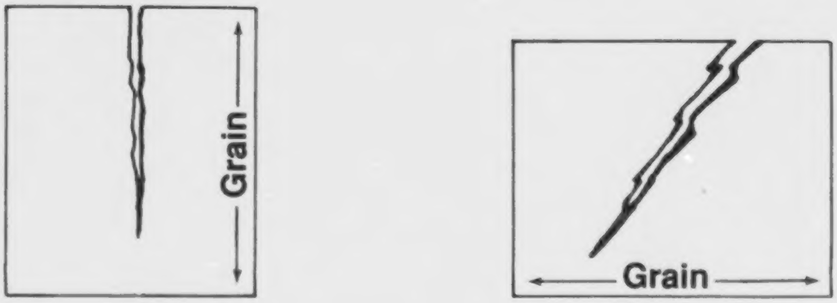


Small differences in thickness provide significant variation.

Example: Uncoated antique book paper will be 70 percent thicker than conventionally coated offset.

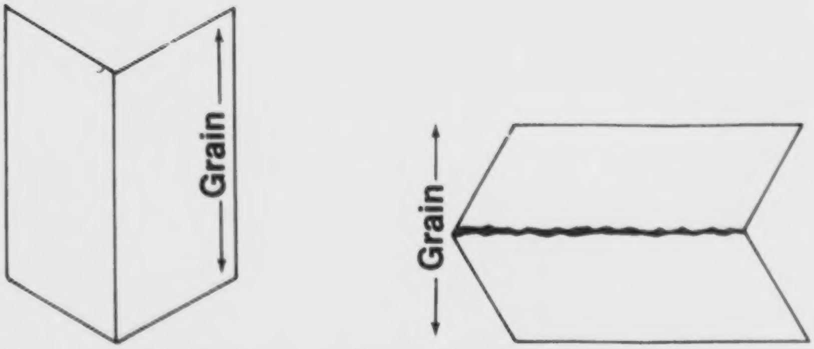
(Used with permission of Western Paper Company, Oklahoma City, Oklahoma.)

Grain Tests



Paper tears straighter with grain.

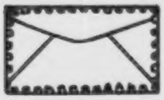
Tear



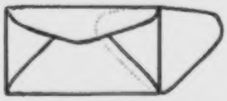
Paper folds more easily with grain.

Fold

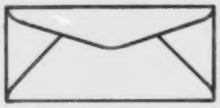
Types of Envelopes



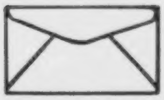
Air Mail



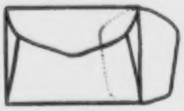
Postage Saver



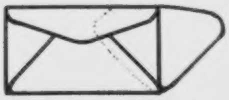
Official



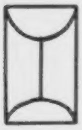
Commercial



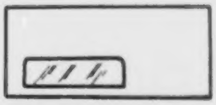
Booklet



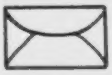
Dot-A-Gum Postage Saver



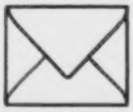
Coin



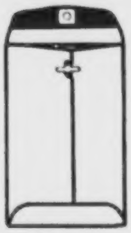
Transparent Window



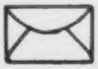
Pay



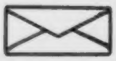
Baronial



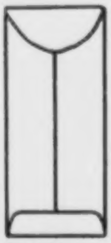
Clasp



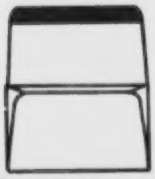
Drug



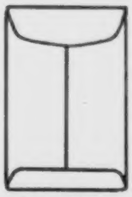
Theater



Policy



Remittance



Catalog

(Courtesy Carpenter Paper Company, Oklahoma City)

TYPOGRAPHY
UNIT VI

SUGGESTED ACTIVITIES

A. Obtain additional materials and/or invite resource people to class to supplement/ reinforce information provided in this unit of instruction.

B. Make transparencies from the transparency masters included with this unit.

C. Provide students with objective sheet.

D. Discuss unit and specific objectives.

E. Provide students with information and assignment sheets.

F. Discuss information and assignment sheets.

(NOTE: Use the transparencies to enhance the information as needed.)

G. Integrate the following activities throughout the teaching of this unit:

1. Show samples of different races of type.

2. Show samples of different families of type and family variations.

3. Show samples of different formats of type composition.

(NOTE: Draw samples from magazines popular with your students.)

4. Meet individually with students to evaluate their progress through this unit of instruction, and indicate to them possible areas for improvement.

H. Give test.

I. Evaluate test.

J. Reteach if necessary.

REFERENCES USED IN WRITING THIS UNIT

A. Baird, Russell N. *The Graphics of Communication*, Orlando, FL: Harcourt Brace College Publishers, 1993.

B. Beach, Mark. *Getting It Printed*. Cincinnati, OH: North Light Books, 1993.

C. Conover, Theodore E. *Graphic Communications Today*. St. Paul, MN: West Publishing Co., 1985.

SUGGESTED ACTIVITIES

D. Craig, James. *Designing with Type: A Basic Course in Typography*. New York, NY: Watson-Guptill Publications, 1992.

E. Crow, Wendall C. *Communication Graphics*. Englewood Cliffs, NJ: Prentice-Hall, 1986.

SUGGESTED SUPPLEMENTAL MATERIAL

A. Periodical—*U&l.c.* (Upper and Lower Case): The International Journal of Typographics. Published by international Typeface Corp., quarterly.

B. Slide presentation—Typefaces (5080)

Available from:

Graphic Arts Technical Foundation
4615 Forbes Avenue
Pittsburgh, PA 15213-3796
(412) 621-6941
www.gatf.com/products.html
or
E-mail Training@gatf.lm.com

TYPOGRAPHY
UNIT VI

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

The student should have several examples for each of the six listed type races. They should be correctly identified within the limits of information provided. For example, the sans serif category should not have any examples with serifs.

Assignment Sheet #2

1. 15
2. 19½
3. 22½
4. 11
5. 14
6. 30
7. 12
8. 18
9. 6

Assignment Sheet #3

Students should have located and correctly labeled at least one example of each of the eight formats.

TYPOGRAPHY
UNIT VI

TEST

Name ______________________________ Score ______________

1. Match the terms on the right with the correct definitions.

_____a. Printer's ruler that is calibrated in picas, points, and inches

_____b. Unit of measurement equaling ⅙ of an inch or 12 points

_____c. Unit of measurement equaling approximately 1/72 of an inch or 1/12 of a pica; used to express type size or leading

_____d. The art and science of working with type

_____e. Characters used singly or collectively to create words, sentences, paragraphs, blocks of copy, etc.

_____f. A particular style or design of type

_____g. Individual letters, numerals, punctuation marks or other symbols

_____h. All the characters of a particular typeface

_____i. All the type styles of a particular typeface

_____j. The height of a typeface measured from the bottom of its descenders to the top of its ascenders

_____k. Type 12 points and smaller

_____l. Type 14 points or larger

_____m. Amount of space between letters

_____n. Amount of space between words

_____o. The width of a line of type

1. Ascender
2. Body type
3. Characters
4. Descender
5. Dingbat
6. Display type
7. Family
8. Font
9. Kerning
10. Leading
11. Letterspacing
12. Line gauge
13. Lowercase
14. Measure
15. Pica
16. Point
17. River
18. Serifs

TEST

_____p. The space between lines of type

_____q. End of a paragraph or column that is undesirably short

_____r. Adjusting the letterspacing between certain letters to make them appear better fitted together

_____s. Short cross-strokes that project out at the end of the main letter strokes in some typefaces

_____t. The part of a lowercase letter that goes below the x-height, as in g, j, p, q, and y

_____u. The part of a lowercase letter that rises above the x-height, as in b, d, f, h, k, l, and t

_____v. The distance between the base line and mean line of type; the height of a lowercase letter excluding the ascenders or descenders

_____w. Body type set in normal paragraph form in contrast to tabular matter

_____x. Charts, tables, formulas, or other elements that make typesetting complicated and time consuming

_____y. Distracting pattern of white space running vertically down through body copy

_____z. Capital letters of the alphabet

_____aa. Small letters of the alphabet

_____bb. Capital letters that are the same size as the x-height of the typeface

_____cc. A typographic decorative device such as a bullet or star

19. Small caps
20. Straight matter
21. Tabular matter
22. Type
23. Typeface
24. Type Size
25. Typography
26. Uppercase
27. Widow
28. Wordspacing
29. x-height

TEST

2. Identify parts of a type character from the illustration below by placing the appropriate numbers in the proper blanks.

_____a. Ascender line

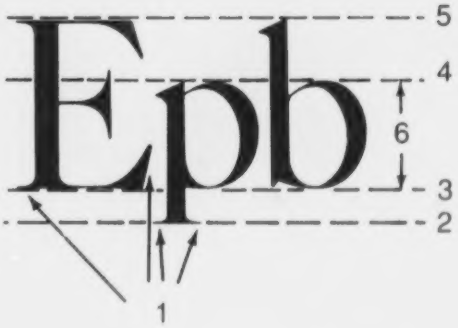
_____b. Base line

_____c. Descender line

_____d. Mean line

_____e. Serifs

_____f. x-height



3. Identify the races of type shown by placing the appropriate numbers in the correct blanks.

_____a. Roman

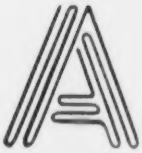
_____b. Sans serif

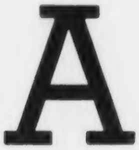
_____c. Script

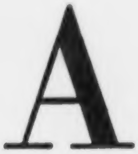
_____d. Novelty

_____e. Square serif

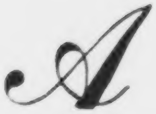
_____f. Text

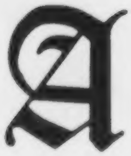
1.


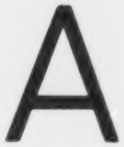
2.


3.


TEST

4. 

5. 

6. 

4. Complete the following statements concerning type families by writing the missing word(s) in the blanks.

   a. Each type race consists of subgroups, called _______________.

   b. _______________ is ordered by family name.

   c. Families may have a number of _____________ involving weight, width and posture.

   d. Weight variations refer to type styles designed with ________________ or _______________ strokes.

   e. _______________ variations refer to the condensing or extending of the letters.

   f. Posture refers to upright and _______________.

5. Complete the following statements concerning the measurement of type by circling the correct words.

   a. The smallest unit of measurement is the (**point**, **pica**).

   b. Points are used to measure (**type size**, **line length**).

   c. 1 pica = (**6**, **12**, **72**) points.

   d. 6 picas = 1 (**point**, **inch**).

   e. Type size is measured (**from bottom of descender to top of ascender**, **by height of capital letter**).

   f. Line length is also known as (**leading**, **measure**).

   g. Leading is measured in (**picas**, **points**).

   h. The amount of spacing between letters is (**wordspacing**, **letterspacing**).

   i. The most common indentation is 1 (**em**, **en**).

TEST

6. Identify the following formats of type composition by writing the correct names in the blanks.

Copy must occasionally be arranged
to fit around a
photograph or
illustration. This
format has a
name. It is very
effective when
used properly, but should not be over-
used, or it will lose its appeal and value.

a. ______________________________

Sometimes it is necessary to type
copy in different arrangements
to fit the page or space available.
These different arrangements are
called formats.

b. ______________________________

THIS IS A SAMPLE
OF TYPE
SET ON THE IBM
COMPOSER
Univers Type - 11 pt. Medium

c. ______________________________

Now is the time for all good men to come to the aid of their country. Now is the time for all good men to come to the aid of their country.

d. ______________________________

Many type styles are available for use on the IBM
Composer. Sizes may range in points from 6 to
12. The shift should never be in the locked position
when changing elements. Otherwise the element
may be damaged.

e. ______________________________

TYPOGRAPHY
UNIT VI

ANSWERS TO TEST

1.	a.	12	k.	2	u.	1
	b.	15	l.	6	v.	29
	c.	16	m.	11	w.	20
	d.	25	n.	28	x.	21
	e.	22	o.	14	y.	17
	f.	23	p.	10	z.	26
	g.	3	q.	27	aa.	13
	h.	8	r.	9	bb.	19
	i.	7	s.	18	cc.	5
	j.	24	t.	4		

2.	a.	5	d.	4
	b.	3	e.	1
	c.	2	f.	6

3.	a.	3	d.	1
	b.	6	e.	2
	c.	4	f.	5

4.	a.	Families	d.	Thinner, thicker
	b.	Type	e.	Width
	c.	Variations	f.	Italic

5.	a.	Point
	b.	Type size
	c.	12
	d.	Inch
	e.	From bottom of descender to top of ascender
	f.	Measure
	g.	Points
	h.	Letterspacing
	i.	Em

6.	a.	Runaround
	b.	Flush right
	c.	Centered
	d.	Justified
	e.	Flush left

TYPOGRAPHY
UNIT VI

UNIT EVALUATION FORM

Student Name ______________________________ Unit Rating ____________

Assignment Sheet Ratings

Assignment Sheet #1—Identify Type Races in Printed Material Rating __________

Comments: ____

____

Assignment Sheet #2—Measure Type Rating __________

Comments: ____

____

Assignment Sheet #3—Identify Formats of Type Composition Rating __________

Comments: ____

____

Written Test Scores

Pretest _____ Posttest _____ Other _____

Other ____

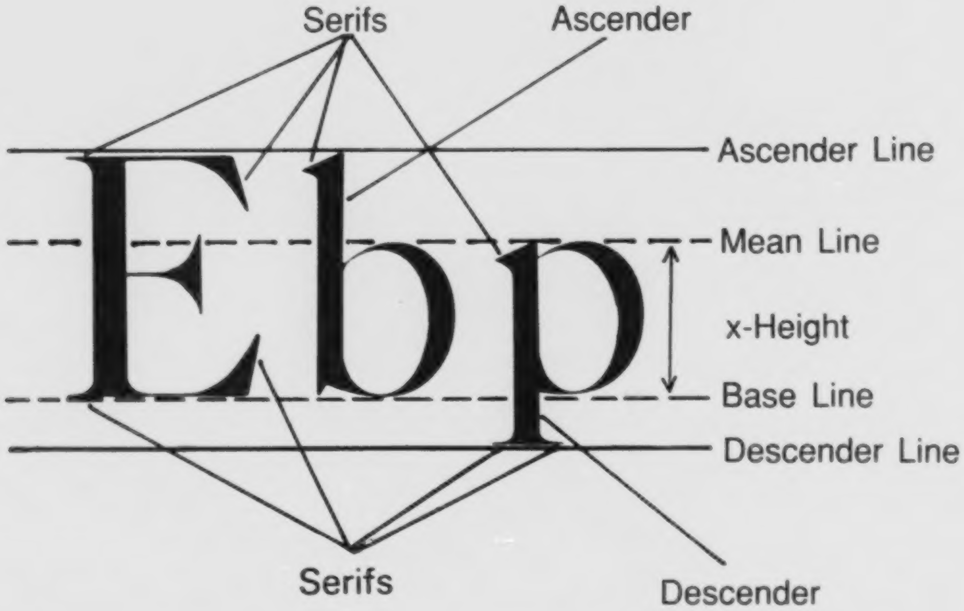
____

Teacher Signature ____________________________ Date ____________

Student Signature ____________________________ Date ____________

*Permission to duplicate this form is granted.

Parts of a Type Character



Races of Type

Roman or Serif

Times New Roman ABCDEFGHIJKLMNOPQRSTUVWXYZ
Century Schoolbook ABCDEFGHIJKLMNOPQRSTUVWXYZ
Bookman Old Style ABCDEFGHIJKLMNOPQRSTUVWXYZ

Square Serif

Garamond ABCDEFGHIJKLMNOPQRSTUVWXYZ
Book Antiqua ABCDEFGHIJKLMNOPQRSTUVWXYZ

Script or Cursive

Matura MT Script Capitals
ABCDEFGHIJKLMNOPQRSTUVWXYZ

Brush Script ABCDEFGHIJKLMNOPQRSTUVWXYZ

Sans Serif or Gothic

Arial ABCDEFGHIJKLMNOPQRSTUVWXYZ
Century Gothic ABCDEFGHIJKLMNOPQRSTUVWXYZ
Britannic Bold ABCDEFGHIJKLMNOPQRSTUVWXYZ

Text

Old English ABCDEFGHIJKLMNO
American Text ABCDEFGHIJKLMNOPQR
Wedding Text ABCDEFGHIJKLMNOPQ

Novelty

BRAGGADOCIO
ABCDEFGHIJKLMNOPQRSTUVWXYZ

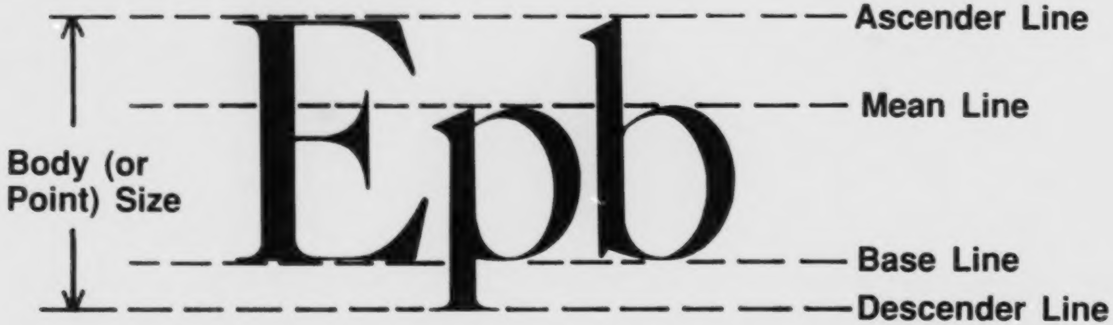
Kino MT ABCDEFGHIJKLMNOPQRSTUVWXYZ
Playbill ABCDEFGHIJKLMNOPQRSTUVWXYZ

Type Sizes

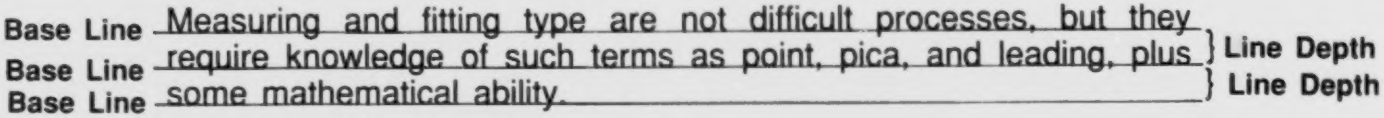
This is 6 point type.
This is 8 point type.
This is 9 point type.
This is 10 point type.
This is 12 point type.
This is 14 point type.
This is 18 point type.
This is 24 point type.
This is 36 point type.
This is 48 point
This is 60 point
This is 72 po
This is 84
This is 96

Measuring Body Size and Line Depth

Measure Body Size from Top of Ascender to Bottom of Descender.



Measure Line Depth from Base Line to Base Line.


Base Line — Measuring and fitting type are not difficult processes, but they
Base Line — require knowledge of such terms as point, pica, and leading, plus
Base Line — some mathematical ability.

TYPESETTING
UNIT VII

SUGGESTED ACTIVITIES

A. Obtain additional materials and/or invite resource people to class to supplement/reinforce information provided in this unit of instruction.

B. Make transparencies from the transparency masters included with this unit.

C. Provide students with objective sheet.

D. Discuss unit and specific objectives

E. Provide students with information and assignment sheets.

F. Discuss information and assignment sheets.

(NOTE: Use the transparencies to enhance the information as needed.)

G. Provide students with job sheets.

H. Discuss and demonstrate the procedures outlined in the job sheets. Provide typesetting equipment and appropriate instruction in their use. Evaluate student performance based on criteria listed.

I. Integrate the following activities throughout the teaching of this unit:

    1. Show samples of hand-set type or metal slugs and then compare to transfer type and phototypesetting "fonts."
    2. Show trade literature on typesetting equipment.
    3. Show type specimen books.
    4. Plan a field trip to a "type house" or a newspaper, commercial printer or in-house composing department that uses some of the typesetting equipment referred to in this unit.
    5. Have students make a survey of the kinds of typesetting equipment used in area shops.
    6. Meet individually with students to evaluate their progress through this unit of instruction, and indicate to them possible areas for improvement.

J. Give test.

K. Evaluate test.

L. Reteach if necessary.

REFERENCES USED IN WRITING THIS UNIT

A. Baird, Russell N. *The Graphics of Communication*, Orlando, FL: Harcourt Brace College Publishers, 1993.

B. Beach, Mark. *Getting It Printed*. Cincinnati, OH: North Light Books, 1993.

C. Crow, Wendall C. *Communication Graphics*. Englewood Cliffs, NJ: Prentice-Hall, 1986.

D. Craig, James. *Designing with Type: A Basic Course in Typography*. New York, NY: Watson-Guptill Publications, 1992.

E. Dennis, Ervin A. *Lithographic Techniques*. Albany, NY: Delmar Publishers, 1997.

TYPESETTING
UNIT VII

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

1. 16.6 picas
2. 19.5 picas
3. 14.3 picas

Assignment Sheet #2

The student should appropriately mark up the illustrated copy showing text type size and style, width of columns in picas, display type size and style, and leading. The mark-up should be legible and written in margins only.

TYPESETTING
UNIT VII

TEST

Name ______________________________ Score __________

1. Match the terms on the right with the correct definitions.

______a. Any written material needing to be typeset

______b. Type produced by means other than hot metal

______c. Type composed by machine from molten metal; sometimes includes handset type

______d. A business that sets type

______e. Typesetting done in the offices of organizations requiring printed materials

______f. Book showing examples of all typefaces available from a type shop

______g. To set type by any method

______h. The individual who sets type

______i. Type that has been set

______j. Instructions about the typeface, size, style, leading, measure, arrangement, etc.

______k. Hyphenation and justification

______l. Indicator that locates on the VDT screen where the next action will take place

______m. Primary computer input device including character keys, numeric keys, direction keys and other special keys for typographic commands

1. Character count
2. Cold type
3. Compose
4. Composition
5. Compositor
6. Copy
7. Copyfit
8. Cursor
9. Digital type
10. Floppy disk
11. Format
12. Hard copy
13. Hot type
14. h&j

TEST

______n. Specifications that the typesetter translates into computer-specific codes to perform a change of font, measure, leading or a combination of these functions

______o. Device to connect one computer to another via telephone lines

______p. Small device used to move the cursor on a computer screen

______q. Number of characters in a pica, inch or line; it is different for each typeface and size and varies with extending or condensing

______r. To indicate on layout or copy instructions for typesetting

______s. To calculate how much space a given amount of copy will occupy when set in a specified size and typeface

______t. Abbreviation for "What You See Is What You Get"; a VDT in which the type on the screen resembles the final output

______u. A type of electrostatic printing in which the image is created by modulating a laser on and off according to digital information from a computer

______v. A cathode-ray tube keyboard-operated device for displaying copy, making corrections, combining copy elements and performing other typesetting functions

______w. Electronic generation of text and graphics that allows layout and design of multiple pages of a publication to be done on a VDT

______x. A scanner that reads typed manuscripts and produces a magnetic or perforated tape or electronic signals from which type can be set

______y. A small, flexible plastic disk that stores data magnetically after the typesetting computer has been switched off

15. In-house composition
16. Keyboard
17. Laser
18. Laser printing
19. Mark up
20. Modem
21. Mouse
22. OCR
23. Pagination
24. Specifications
25. Type house
26. Type specimen book
27. VDT
28. WYSIWYG

TEST

______z. Acronym for light amplification by stimulated emission of radiation

______aa. Copy on paper as opposed to the "soft" copy in electronic memory

______bb. Characters, such as from a laser printer or phototypesetter, made up of thousands of lines or dots positioned by a computer

2. List the two kinds of hot type composition and six kinds of cold type composition.

Hot type	**Cold type**
a. ____________________	a. ____________________
b. ____________________	b. ____________________
	c. ____________________
	d. ____________________
	e. ____________________
	f. ____________________

3. Match the composition methods on the right with their correct advantages or disadvantages.

______a. Coupled with laser printers, puts typesetting into the hands of writers and editors

______b. Low cost and adequate quality, but limited to text sizes only in small range of type styles

______c. Used primarily in custom design work

______d. High speed, excellent image quality, wide choice of type styles and sizes, and ability to output both type and graphics

______e. Slow, but popular method of preparing small amounts of distinctive display type; offers the greatest range of typefaces for the least money

______f. Slow and time-consuming; no longer widely used

1. Hand-set
2. Machine set
3. Hand lettering
4. Transfer type
5. Strike-on
6. Photographic typesetting
7. Digitized typesetting
8. Microcomputer

TEST

______g. Excellent image quality, wide choice of type styles, speed, versatility and low cost

______h. Slow; offers limited choices of type styles and sizes but still used for premium jobs

4. Select true statements concerning the typesetting process by placing an "X" in the appropriate blanks.

______a. Copy may be delivered to the typesetter electronically.

______b. Type of paper influences the reproduction quality of type.

______c. The amount of keyboarding required is the only factor affecting cost of typesetting.

______d. Typesetting is done by independent "type houses", printers, quick-copy shops, publishers of newspapers, magazines and books, and in-house.

5. Select true statements concerning copyfitting by placing an "X" in the appropriate blanks.

______a. To determine the depth of typeset copy, calculate leading plus type point size times number of lines.

______b. To determine the total of typewritten characters on an elite typewriter, multiply line length by 10, times the number of lines.

______c. In using the vertical line method, one should begin by drawing a vertical line down the typewritten copy at the end of the shortest full line of type.

______d. To convert typewriter characters to typesetting, one should determine both type size and type characters per pica.

6. Select true statements concerning marking up copy by placing an "X" in the appropriate blanks.

______a. Mark instructions on the copy, not in the margins.

______b. Mark type style and size for text and display copy.

______c. Mark line measures and leading.

______d. After preparing copy, read and correct it with proper proofreading marks.

***Permission to duplicate this test is granted**

TYPESETTING
UNIT VII

ANSWERS TO TEST

1.

a.	6	h.	5	o.	20	v.	27
b.	2	i.	4	p.	21	w.	23
c.	13	j.	24	q.	1	x.	22
d.	25	k.	14	r.	19	y.	10
e.	15	l.	8	s.	7	z.	17
f.	26	m.	16	t.	28	aa.	12
g.	3	n.	11	u.	18	bb.	9

2.

Hot type (Any order)		**Cold type** (Any order)	
a.	Hand-set foundry	a.	Hand lettering
b.	Machine set	b.	Transfer type and press-on lettering
		c.	Strike-on
		d.	Photographic typesetting
		e.	Digitized typesetting
		f.	Microcomputer

3.

a.	8	e.	4
b.	5	f.	1
c.	3	g.	6
d.	7	h.	2

4. a, b, d

5. a, c, d

6. b, c, d

TYPESETTING
UNIT VII

UNIT EVALUATION FORM

Student Name ______________________________ Unit Rating _____________

Assignment Sheet Ratings

Assignment Sheet #1—Calculate Copyfitting Rating ___________

Comments: ____

____

Assignment Sheet #2—Mark up Copy Rating ___________

Comments: ____

____

Job Sheet #1—Set Text Type
Using a Phototypesetting Machine Rating ___________

Comments: ____

____

Job Sheet #2—Set Type Using a Microcomputer Rating ___________

Comments: ____

____

Written Test Scores

Pretest _____ Posttest _____ Other _____

Other ____

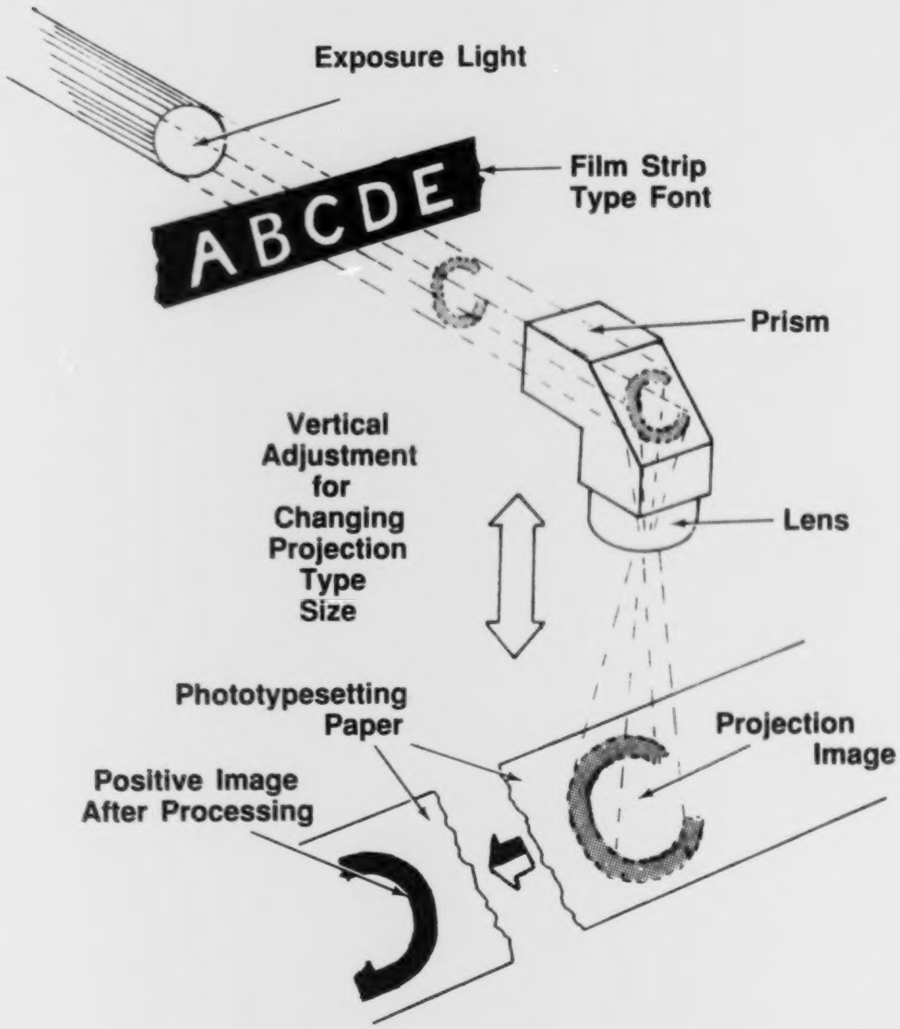
____

Teacher Signature ___________________________ Date ____________

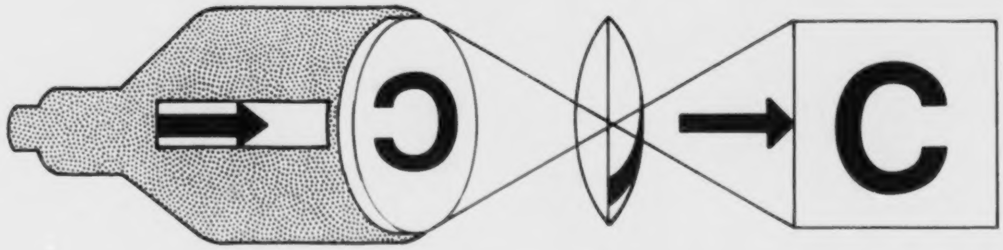
Student Signature ___________________________ Date ____________

*Permission to duplicate this form is granted

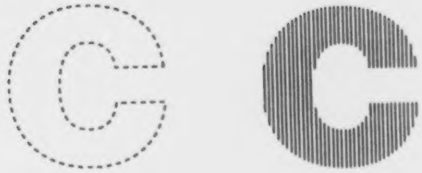
Projection Principle of the Photographic Typesetter



Principle of the Digital Typesetter



The scanner "reads" the character and stores it as an outline.



The outline is then filled in with tiny lines.

DESIGN PRINCIPLES
UNIT VIII

SUGGESTED ACTIVITIES

A. Obtain additional materials and/or invite resource people to class to supplement/reinforce information provided in this unit of instruction.

(NOTE: This activity should be completed prior to the teaching of this unit.)

B. Make transparencies from the transparency masters included with this unit.

C. Provide students with objective sheet.

D. Discuss unit and specific objectives.

E. Provide students with information and assignment sheets.

F. Discuss information and assignment sheets.

(NOTE: Use the transparencies to enhance the information as needed.)

G. Integrate the following activities throughout the teaching of this unit:

1. Bring to class samples of thumbnail sketches, rough layouts and comprehensives.
2. Plan a visit to a commercial art department or advertising agency to observe design principles being utilized.
3. Invite an art director, graphic designer or art teacher to class to discuss art, color and principles of design.
4. Create some layouts utilizing design principles taught in this unit and discuss with class.
5. Show examples of spot and process color used in printed material.
6. Bring to class samples of miscellaneous publications.
7. Meet individually with students to evaluate their progress through this unit of instruction, and indicate to them possible areas for improvement.

H. Give test.

I. Evaluate test.

J. Reteach if necessary.

SUGGESTED ACTIVITIES

REFERENCES USED IN WRITING THIS UNIT

A. Arnold, Edmund C. *Ink on Paper 2*. New York, NY: Harper & Row, 1972.

B. Arnston, Amy E. *Graphic Design Basics*. Orlando, FL: Harcourt Brace College Publications, 1988.

C. Baird, Russell N. *The Graphics of Communication*, 5th ed. Orlando, FL: Harcourt Brace College Publications, 1993.

D. Crow, Wendall C. *Communication Graphics*. Englewood Cliffs, NJ: Prentice-Hall, 1986.

E. Hawkinson, Bruce. *Graphic Arts: A Curriculum Manual*. Albuquerque, NM: Vo-Tech Division of the New Mexico State Department of Education, 1975.

F. Nelson, Roy Paul. *Publication Design*. Madison, WI: Brown and Benchmark, 1990.

G. Spence, William, and David Vequist: *Graphic Reproduction*. Blacklick, OH: Bennett Publishing Co., 1980.

SUGGESTED SUPPLEMENTAL MATERIAL

Periodicals

A. *Communication Arts*. Palo Alto, CA (Bimonthly)

B. *Print*. Washington, DC (Bimonthly)

Audiovisuals

A. *Planning Printing* (5030). 34 color, 35-mm slides
Graphic Arts Technical Foundation
4615 Forges Avenue
Pittsburgh, PA 15213
Telephone: (412)621-6941
www.gatf.com/products.html
or
E-mail Training@gatf.com

B. *The Colors for Success* – VHS videotape
Pantone, Inc.
55 Knickerbaker Road
Moonachie, NJ 70704
Telephone (201)935-5500

DESIGN PRINCIPLES
UNIT VIII

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

The following elements should be present in the advertisement the student selected: headline, art, body copy, and logo.

At least three proportional thumbnails and one rough layout should be submitted following the principles of design outlined in the unit.

Assignment Sheet #2

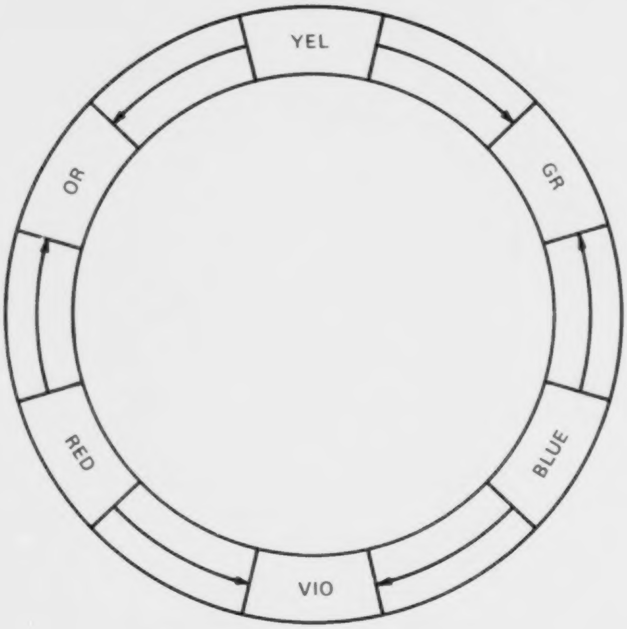
The student should locate and label at least one advertisement demonstrating each of the following: balance, proportion, sequence, emphasis, and unity.

Assignment Sheet #3

The student should bring at least three examples of line art and three examples of continuous tone art to class for discussion.

Assignment Sheet #4

The completed color wheel should look like the following:



(NOTE: You may wish to have the students write in the tertiary colors as well.)

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #5

The student should locate and identify at least one example of each of the listed basic color combinations.

DESIGN PRINCIPLES

UNIT VIII
TEST

Name ______________________________ Score ________________

1. Match the terms on the right with their correct definitions.

_____a. Each individual portion of the printed message

_____b. Everything that will be printed or reproduced: type, photographs, illustrations, etc.

_____c. Space not occupied by type, art or other graphic elements

_____d. A trademark or unique type of lettering spelling out the name of a company or product

_____e. Line used for graphic effect

_____f. Area of image printed with dots so ink coverage is less than 100% and simulates shading or a lighter color

_____g. The plan and arrangement of graphic elements

_____h. The preliminary plan or blueprint for any piece to be printed

_____i. To arrange elements so they line up with other elements

_____j. Layout that looks almost like the final printed piece will look

_____k. A small, quickly-drawn sketch that shows a possible way to combine various elements of a proposed printed piece

_____l. Simple sketch showing the size and position of the various elements of the design; usually an actual size, somewhat more refined version of the thumbnail

1. Alley
2. Align
3. Art
4. Balance
5. Bleed
6. Clip art
7. Color swatch
8. Comprehensive
9. Continuous tone art
10. Copy
11. Design
12. Element
13. Emphasis
14. Four-color process
15. Gutter
16. High contrast
17. Layout
18. Line art
19. Logo
20. Margin
21. Optical center
22. PMS

TEST

_____m. The size relationship of one part of the design to the other parts

_____n. Arrangement of elements that attracts attention to the most important element

_____o. Proper placement of elements by weight

_____p. The overall sense that all elements are related

_____q. Arrangement of elements to promote eye movement in logical order

_____r. Space where two pages meet at the binding

_____s. Space between columns on a page

_____t. Any image that extends to the edge of a sheet or page after trimming

_____u. Space that frames the content of a page or sheet

_____v. Point slightly above and to the left of the mathematical center

_____w. All pictorial matter: photographs, paintings, drawings, charts and graphs, etc.

_____x. Photographs, paintings and other images having a complete range or variation of tones from white to black

_____y. Any solid image consisting of black lines on white background without gradation of tones

_____z. High contrast drawings usually on white, slick paper and made to be cut out and pasted into place for the printer

_____aa. Few or no tonal gradations between dark and light areas

_____bb. Sample of an ink color

23. Proportion
24. Rough
25. Rule
26. Screen tint
27. Sequence
28. Thumbnail
29. Unity
30. White space

TEST

______cc. Technique of printing that uses the four process colors of ink to simulate full color

______dd. Abbreviation for Pantone Matching System, a widely used method of specifying spot color by means of numbered color samples available in swatchbooks

2. Match the terms on the right with their correct definitions.

______a. Restful colors like blue and green that tend to recede from the viewer

______b. The three basic colors—red, yellow and blue—from which all other color can be produced, at least in theory

______c. Quality in color that allows its recognition by name

______d. The full strength or purity of a color

______e. Black added to a color to make it darker

______f. White added to a color to make it lighter

______g. Stimulating colors like red and orange that tend to project toward the viewer

______h. Range of light values from white to black, bright to dull

1. Intensity
2. Primary colors
3. Tint
4. Cool colors
5. Shade
6. Tone
7. Warm colors
8. Hue

3. Arrange in order steps in the design process by writing a "1" for the first step, a "2" for the second step, and so on.

______a. Find solutions — Think of all the bits of information you have gathered and decide the best way to solve the problem.

______b. Define the problem and audience — Decide what is to be communicated and to whom.

______c. Refine ideas and present solution — Prepare copy and layout.

______d. Gather information — Research the problem by reading, discussing, and thinking about it.

TEST

_____e. Evaluate solutions — Decide on the best possible solution, then re-examine the solution possibilities.

4. Select from the following list things a designer wants from a printer by placing an "X" in the appropriate blanks.

_____a. A cheap price, even if some details are neglected

_____b. Fast answers to queries

_____c. On time delivery

_____d. Attention to detail; highest possible quality

5. List three functions of design.

a. ______________________________

b. ______________________________

c. ______________________________

6. List the five components of printed communication.

a. ______________________________

b. ______________________________

c. ______________________________

d. ______________________________

e. ______________________________

7. Distinguish between the three stages of layout by writing a "T" for thumbnail, an "R" for rough, or a "C" for comprehensive.

_____a. Actual size

_____b. Shows different ways to lay out printed piece

_____c. Tests whether the idea from the thumbnail stage works on a larger scale

_____d. Small, quick sketch

_____e. Serves as guideline for making rough layouts

_____f. Shown to the client who may have difficulty visualizing job in the rough layout stage

_____g. Has specifications for printing job written in margin

TEST

_____h. Looks as much like final printed piece as possible

_____i. Also called the miniature

_____j. Aids in visualizing spacing, balance, proportion and emphasis

_____k. Used to explore and develop an idea

8. Select true statements concerning principles of design by placing an "X" in the blank for each correct statement.

_____a. When using formal balance, each element that appears on one side of the design also appears on the other side.

_____b. White space is passive when using informal balance.

_____c. With informal balance, the design is asymmetrical.

_____d. Single page margins should make type area appear optically centered.

_____e. Space within a page should be broken up into pleasing proportions of light to dark and color to noncolor.

_____f. Equal margins are interesting.

_____g. The vertical center of a page is the mathematical center.

_____h. Directional pattern utilizes natural eye movement from big elements to small elements.

_____i. Emphasis is achieved by use of contrasting typefaces.

_____j. To achieve emphasis, all elements of a design should have the same shape.

_____k. To achieve unity, the design should be as elaborate as possible.

_____l. A layout has unity when the elements appear to be related and held together by a single theme.

9. List the two basic types of art and three sources for each type.

Type	Sources
a. ______________________	1) ______________________
	2) ______________________
	3) ______________________

TEST

Type	**Sources**
b. ____________________	1) ____________________
	2) ____________________
	3) ____________________

10. Select true statements concerning working with color by placing an "X" in the appropriate blanks.

_____a. Two basic categories of color printing are process color and spot color.

_____b. The Pantone Matching System is an international printing, publishing and packaging color language.

_____c. Secondary colors are orange, brown and green.

_____d. By combining primary and secondary colors, intermediate colors can be formed.

_____e. A combination of any two primary colors results in a third or tertiary color.

_____f. Two or more tones of one color results in monochromatic harmony.

_____g. Use of two colors directly opposite from each other on the color wheel results in analogous harmony.

_____h. When using triad combinations, they should not all be of the same strength or intensity.

_____i. Black, white and gray may be used with any color or combination of colors and result in perfect harmony.

_____j. Warm colors are red and green.

_____k. When using more than one color, reserve the darkest for the basic message.

_____l. Type in color, or on colored stock, is strongly recommended.

TEST

11. List five kinds of publication design.

a. ______________________________

b. ______________________________

c. ______________________________

d. ______________________________

e. ______________________________

*** Permission to duplicate this test is granted.**

GI-T141

DESIGN PRINCIPLES
UNIT VIII

ANSWERS TO TEST

1.

a.	12	h.	17	o.	4	v.	21	cc.	14
b.	10	i.	2	p.	29	w.	3	dd.	22
c.	30	j.	8	q.	27	x.	9		
d.	19	k.	28	r.	15	y.	18		
e.	25	l.	24	s.	1	z.	6		
f.	26	m.	23	t.	5	aa.	16		
g.	11	n.	13	u.	20	bb.	7		

2.

a.	4	e.	5
b.	2	f.	3
c.	8	g.	7
d.	1	h.	6

3.

a.	3
b.	1
c.	5
d.	2
e.	4

4. b, c, d

5. Any three of the following:

   a. Attract, then hold attention of desired audience
   b. Make message easy to read
   c. Create a clear, orderly flow of graphic elements
   d. Leave some lasting impression
   e. Use appropriate technology to deliver the message efficiently and economically

6. a. Body type
   b. Display type
   c. Art
   d. Other graphic devices
   e. White space

7.

a.	R or C	g.	R
b.	T	h.	C
c.	R	i.	T
d.	T	j.	R
e.	T	k.	T
f.	C		

ANSWERS TO TEST

8. a, c, d, e, h, i, l

9. a. Line art
   Any three of the following:

      1) Your own drawings
      2) Artists and illustrators
      3) Clip art
      4) Public domain sources
      5) Drawings from government agencies, trade and professional organizations, businesses, chambers of commerce, etc.

   b. Continuous tone art
   Any three of the following:

      1) Your own photographs
      2) Professional photographers
      3) Stock photo houses that sell prints for one-time use
      4) Photos from government agencies, trade and professional organizations, businesses, chambers of commerce, etc.

10. a, b, d, f, h, i, k

11. The following may be in any order:

    a. Books
    b. Magazines
    c. Newspapers
    d. Newsletters
    e. Miscellaneous publications

DESIGN PRINCIPLES
UNIT VIII

UNIT EVALUATION FORM

Student Name ______________________________ Unit Rating ____________

Assignment Sheet Ratings

Assignment Sheet #1—Make Thumbnail and Rough Layouts Rating __________

Comments: ____

____

Assignment Sheet #2—Label Magazine Ads Utilizing Principles of Design Rating __________

Comments: ____

____

Assignment Sheet #3—Identify Types of Art in Printed Material Rating __________

Comments: ____

____

Assignment Sheet #4—Complete a Drawing of the Printer's Color Wheel Rating __________

Comments: ____

____

Assignment Sheet #5—Identify Six Basic Color Combinations in Printed Material Rating __________

Comments: ____

____

UNIT EVALUATION FORM

Written Test Scores

Pretest _____ Posttest _____ Other _____

Other ____

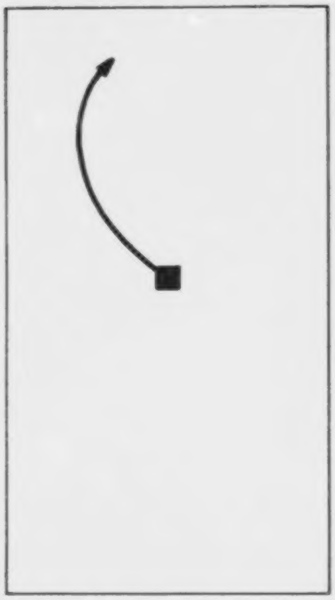
____

Teacher Signature ______________________________ Date _____________

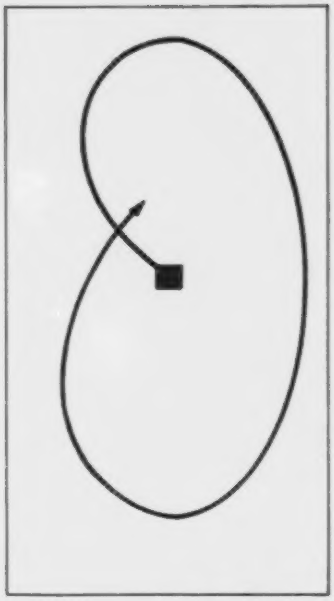
Student Signature ______________________________ Date _____________

*Permission to duplicate this form is granted

Methods Used to Achieve Direction

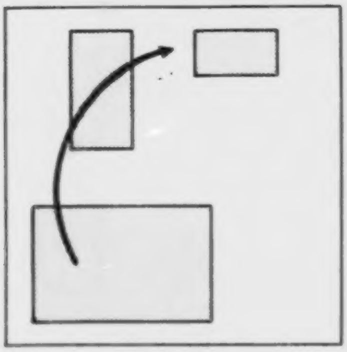


A. Examination of layout begins at optical center.



B. Exploration continues in clockwise direction — from center to upper left, and around

C. Pointing devices may be used to direct the eyes.



D. Element positioning may suggest eye movement.

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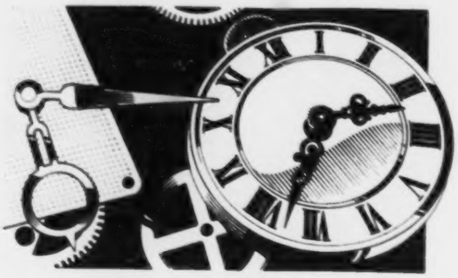
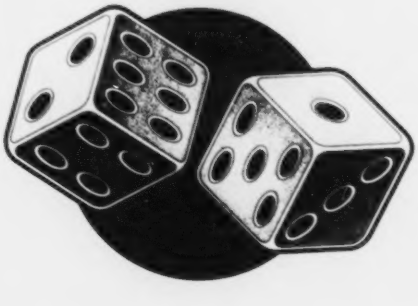
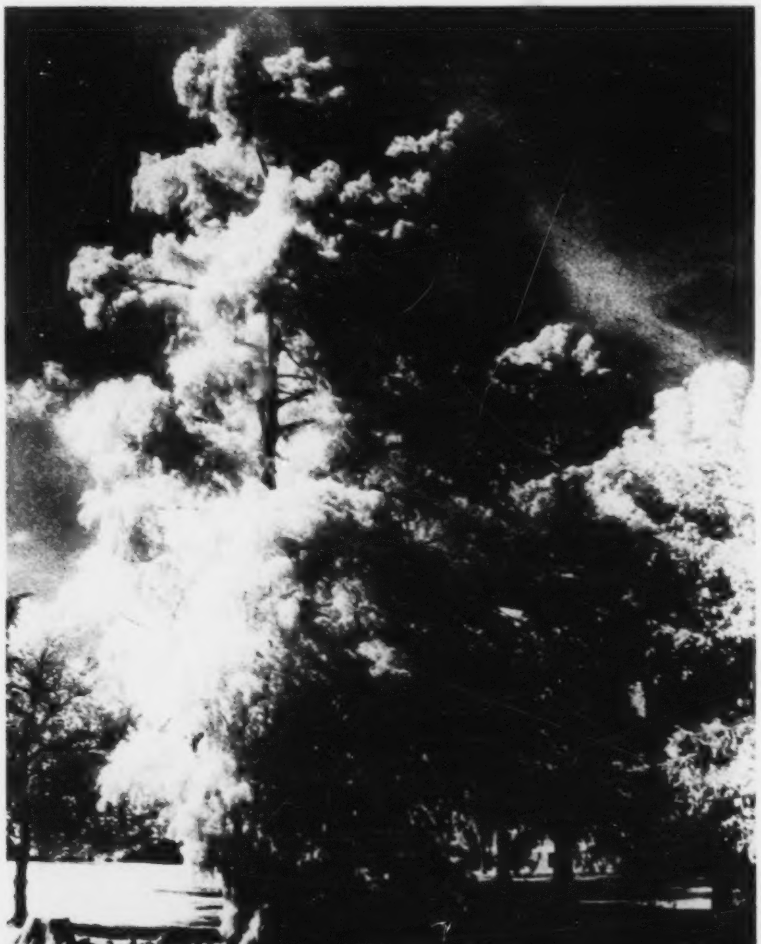
Line Art





GI-T149

Continuous Tone Art



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TM 3

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

SUGGESTED ACTIVITIES

A. Obtain additional materials and/or invite resource people to class to supplement/ reinforce information provided in this unit of instruction.

(NOTE: This activity should be completed prior to the teaching of this unit.)

B. Provide students with objective sheet.

C. Discuss unit and specific objectives.

D. Provide students with information sheet.

E. Discuss information sheet.

F. Determine how job sheets will be administered and what types of print jobs will be assigned.

G. Provide students with job sheets.

H. Discuss and demonstrate the procedures outlined in the job sheets. Evaluate student performance on job sheets according to criteria provided.

I. Integrate the following activities throughout the teaching of this unit:

1. Show samples of paste-ups for different kinds of jobs.
2. Make a bulletin board display of tint screens and special effect screens.
3. Make a bulletin board display of postal regulations obtained from your Postmaster.
4. Meet individually with students to evaluate their progress through this unit of instruction, and indicate to them possible areas for improvement.

J. Give test.

K. Evaluate test.

L. Reteach if necessary.

REFERENCES USED IN WRITING THIS UNIT

A. Baird, Russell N. *The Graphics of Communication*, 5th ed. Orlando, FL: Harcourt Brace College Publications, 1993.

B. Craig, James. *Production for the Graphic Designed*. New York, NY: Watson-Guptill Publications, 1990.

C. Crow, Wendall C. *Communication Graphics*. Englewood Cliffs, NJ: Prentice-Hall, 1986.

D. *A Guide to Business Mail Preparation*. Washington, DC: United States Postal Service, 1985.

E. Silver, Gerald A. *Modern Graphic Arts Paste-Up*. Encino, CA: Editorial Enterprises, 1995.

F. Spence, William, and David Vequist: *Graphic Reproduction*. Blacklick, OH: Bennett Publishing Co., 1980.

G. *MAX IT!* (Classification Reform). Washington, DC: United States Postal Service, 1996.

Audiovisuals

A. *Introduction to the Process Camera* (5070). 52 color, 35-mm slides.

B. *Line Copy for the Process Camera* (5071). 36 color, 35-mm slides.

C. *Paste-up Techniques* (5084). 66 color, 35-mm slides.

A-C are available from:

Graphic Arts Technical Foundation
4615 Forbes Avenue
Pittsburgh, PA 15213-3796
Telephone (412) 621-6941
www.gatf.com/products.html
or
E-mail Training@gatf.lm.com

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

TEST

Name ______________________________ Score ____________________

1. Match the terms on the right with their correct definitions.

_____a. A detailed diagram instructing paste-up person how to arrange elements of a printing job

_____b. A set of folded sheets showing the placement of pages and elements within a printed piece; it may be either rough or comprehensive, depending on the client's needs

_____c. Everything that will be printed: type, art, other graphic elements

_____d. Copy which is ready to be photographed for platemaking according to the technical requirements of either quick or commercial printing

_____e. Art which is prepared for multiple color printing in which the colors overlap slightly

_____f. Camera-ready assembly of type, art and other graphic elements pasted on base sheet in exact position and containing instructions, either in the margins or on an overlay, for the printer; also, as verb, to adhere copy to grids or base sheets

_____g. Right angle marks on paste-up to show the four corners of the printed piece after it has been printed and trimmed

_____h. Block of masking material on a paste-up that shows position of a photograph or other visual element; a transparent opening in line negatives into which a halftone is stripped

_____i. Any image that is solid black with no gradation of tones: clip art, type, rules, dots, etc.

1. Acetate
2. Adhesive
3. Base sheet
4. Bleed
5. Camera-ready copy
6. Continuous tone copy
7. Copy
8. Cover sheet
9. Crop
10. Dropout
11. Dummy
12. Flop
13. Folding dummy
14. Ganging
15. Gripper edge
16. Imposition
17. Keyline art
18. Line copy
19. Overlay
20. Paste-up
21. PMT

TEST

_____j. Any image that has a complete range of tones from black to white; photographs, paintings, drawings, etc.

_____k. Wax, rubber cement, glue stick, spray mount or double-faced tape used to hold copy to base sheet

_____l. Thin, flexible sheet of transparent plastic used to make overlays

_____m. A two-ply, peel-apart masking material; usually ruby-red film adhered to a clear film base

_____n. Surface on which copy is pasted up; usually smooth white hot press illustration board or preprinted grid sheet with all critical guidelines in place

_____o. A sheet of acetate placed over a paste-up to hold copy that will appear in another color; also, a tissue or tracing paper flap to protect paste-up from dirt and damage and indicate instructions to the printer

_____p. Second overlay or flap of heavy kraft or cover paper sometimes attached to paste-up for added protection and better appearance

_____q. Edge of a sheet of paper that enters a press first

_____r. Edge of the press sheet that is printed last

_____s. To make several halftones at the same enlargement or reduction at one time; also to group together two or more jobs on a single press run

_____t. A printed sheet containing a number of pages, usually 4, 8, 16, 32 or 64, that is folded and bound to become part of a publication

22. Process camera
23. Proportional scale
24. Reverse
25. Ruby film
26. Scaling
27. Signature
28. Surprint
29. Trailing edge
30. Trim marks
31. Window

TEST

_____u. Arrangement of pages so that when printed, the press sheet can be folded and bound with the pages in proper sequence

_____v. Large, sturdily built graphic arts camera used to photograph paste-ups and other copy, while at the same time reducing or enlarging the images as needed

_____w. Abbreviation for photomechanical transfer, a Kodak trade name for a process used to make same size, enlarged or reduced positive paper, reverse or acetate prints, of line and continuous tone copy

_____x. Process of calculating the percentage by which images should be enlarged or reduced

_____y. A circular slide rule used to calculate percent that an original image must be reduced or enlarged to yield a specific reproduction size

_____z. To mark a photograph or drawing to indicate which portions are to be reproduced

_____aa. To reproduce the whites in an original as black and the blacks as white

_____bb. A dark image printed over a lighter image area

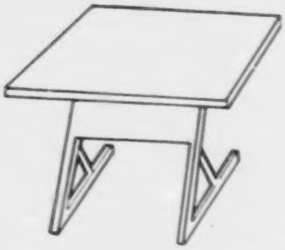
_____cc. To reproduce a photograph or drawing so that it faces the opposite way

_____dd. A term indicating that certain areas of a photograph or screen tint are to be left blank or unprinted

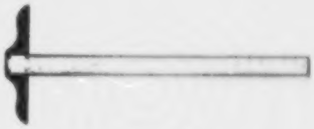
_____ee. Printing image filling one or more margins and running off the edge of a sheet or page

TEST

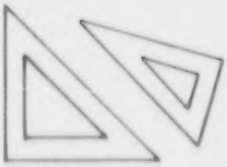
2. Identify the paste-up tools and materials pictured below.



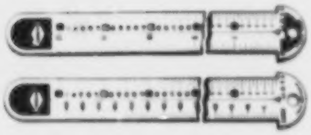
a. ____________________



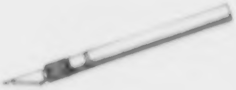
b. ____________________



c. ____________________

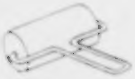


d. ____________________

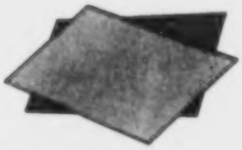


e. ____________________

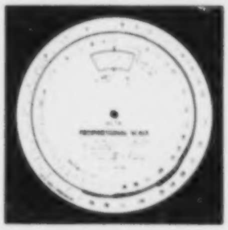
f. ____________________



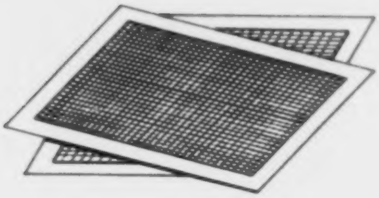
g. ____________________



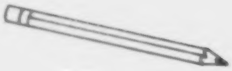
h. ____________________



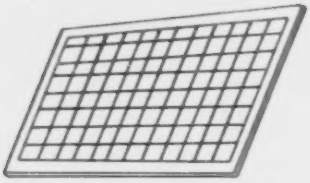
i. ____________________



j. ____________________

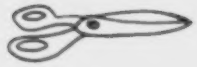


k. ____________________

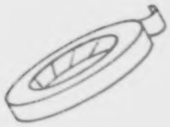


l. ____________________

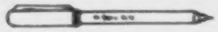
TEST



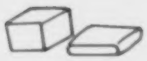
m. ____________________



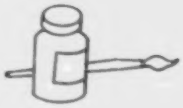
n. ____________________



o. ____________________



p. ____________________



q. ____________________

3. Select true statements concerning basic paste-up steps by placing an "X" in the appropriate blanks.

_____a. Organize all tools and materials.

_____b. Place grid or base sheet anywhere on the table.

_____c. Draw trim marks in nonreproducing light blue.

_____d. Cover finished paste-up with tissue or tracing paper overlay.

_____e. Check paste-up against layout or dummy.

4. Match the registration methods on the right with their correct descriptions.

(NOTE: Answers may be used more than once.)

_____a. Common, accurate method of registering multiple exposures

_____b. Small designs placed on artwork

_____c. Duplicate designs placed on overlays

_____d. Pins placed on illustration board

1. Register marks

2. Register pin system

TEST

5. Select true statements concerning use of clear acetate and ruby film by placing an "X" in the appropriate blanks.

_____a. To produce mechanical color overlays, paste the black copy to the base sheet and each additional color on an acetate overlay.

_____b. When preparing for process color, paste the original art in position on the base sheet and indicate that it is to be printed in process color.

_____c. Prepare a ruby film overlay for each screen tint area to be printed.

_____d. When preparing dropouts, original artwork does not need register marks.

_____e. For windows, cut ruby film and peel away from all areas except where photos will appear.

6. Complete the following statements associated with processing art for production by circling the correct words.

_____a. (**Cropping, Scaling**) is done to eliminate unnecessary portions of art.

_____b. The (**proportional scale, diagonal line**) method of scaling involves lining up width of original with size wanted on an outer circle.

_____c. The formula method of scaling uses the equation of

$$\left(\frac{W}{H} = \frac{w}{h} \qquad \frac{W}{w} = \frac{H}{h}\right)$$

_____d. The point of intersection will be the new height of scaled copy in the (**diagonal line, formula**) method of scaling copy.

7. Match the kinds of imposition on the right with their correct descriptions.

(NOTE: Answers may be used more than once and two terms may apply to one description.)

_____a.	Also referred to as print and turn	1.	Printed-one-side
_____b.	Same gripper edge, both plate runs	2.	Sheet wise
_____c.	Also referred to as work and back	3.	Work and turn
_____d.	Uses different gripper edge, both runs	4.	Work and tumble
_____e.	Prints one side of sheet with each pass through press		
_____f.	Requires two plates, one to print front side of press sheet, and one to print back		

TEST

8. Select true statements concerning postal regulations by placing an "X" in the appropriate blanks.

_____a. Cards and letters must be a minimum of 3 ½" high x 5" long.

_____b. Pieces under minimum size are not mailable.

_____c. Length may not be more than 2.5 times or less than 1.3 times the height.

_____d. The minimum on third class bulk mail is 200 pieces or 50 pounds of material of identical size and weight.

_____e. U.S. Postal Service specifications and negatives must be used for business reply cards.

_____f. A flat rate is charged to all customers mailing third class bulk mail.

*** Permission to duplicate this test is granted.**

GI-T161

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

ANSWERS TO TEST

1.
   a. 11
   b. 13
   c. 7
   d. 5
   e. 17
   f. 20
   g. 30
   h. 31
   i. 18
   j. 6
   k. 2
   l. 1
   m. 25
   n. 3
   o. 19
   p. 8
   q. 15
   r. 29
   s. 14
   t. 27
   u. 16
   v. 22
   w. 21
   x. 26
   y. 23
   z. 9
   aa. 24
   bb. 28
   cc. 12
   dd. 10
   ee. 4

2.
   a. Drawing table
   b. T-square
   c. Triangles
   d. Line gauge
   e. X-Acto knife
   f. Waxer
   g. Burnishing roller
   h. Mechanical films
   i. Proportional scale
   j. Grid or base sheets
   k. Nonreproducing light blue pencil
   l. Trimboard
   m. Scissors
   n. Masking or drawing tape
   o. Fine-tipped black pen
   p. Erasers
   q. Opaque white paint or correction fluid

3. a, d, e

4.
   a. 2
   b. 1
   c. 1
   d. 2

5. a, c, e

6.
   a. Cropping
   b. Proportional scale
   c. $\frac{W}{H} = \frac{w}{h}$
   d. Diagonal line

7.
   a. 3
   b. 2 or 3
   c. 2
   d. 4
   e. 1
   f. 2

8. a, c, d, e

GI-T163

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

UNIT EVALUATION FORM

Student Name ______________________ Unit Rating __________

Job Sheet Ratings

Job Sheet #1—Prepare a Paste-Up Rating __________

Comments: ______________________________

____

Job Sheet #2—Prepare Overlays Using Clear Acetate and Ruby Film Rating __________

Comments: ______________________________

____

Job Sheet #3—Crop a Photograph Rating __________

Comments: ______________________________

____

Job Sheet #4—Scale Copy Rating __________

Comments: ______________________________

____

Written Test Scores

Pretest _____ Posttest _____ Other _____

Other ______________________________

____

Teacher Signature ______________________ Date __________

Student Signature ______________________ Date __________

*Permission to duplicate this form is granted.

PROOF PROCEDURES AND LEGAL CONSIDERATIONS
UNIT X

SUGGESTED ACTIVITIES

A. Obtain additional materials and/or invite resource people to class to supplement/ reinforce information provided in this unit of instruction.

(NOTE: This activity should be completed prior to the teaching of this unit.)

B. Make transparency from the transparency master included with this unit.

C. Provide students with objective sheet.

D. Discuss unit and specific objectives.

E. Provide students with information and assignment sheets.

F. Discuss information and assignment sheets.

(NOTE: Use the transparency to enhance the information as needed.)

G. Integrate the following activities throughout the teaching of this unit:

1. Show samples of the types of proofs.
2. Demonstrate how to make corrections in proof copy.
3. Prepare a bulletin board display showing typographical and other errors and flaws. (Suggest students proof the front page of their hometown newspaper for errors.)
4. Write to U.S. Copyright Office (Register of Copyrights, Library of Congress, Washington, DC 20559) and obtain copyright information.
5. Meet individually with students to evaluate their progress through this unit of instruction, and indicate to them possible areas for improvement.

H. Give test.

I. Evaluate test.

J. Reteach if necessary.

REFERENCES USED IN WRITING THIS UNIT

A. Baird, Russell N. *The Graphics of Communication,* 5th ed. Orlando, FL: Harcourt Brace College Publications, 1993.

B. Beach, Mark, Steve Shepro and Ken Russon. *Getting It Printed.* Cincinnati, OH: North Light Books, 1993.

C. Crow, Wendall C. *Communication Graphics.* Englewood Cliffs, NJ: Prentice-Hall, 1986.

D. Dennis, Ervin A. and John D. Jenkins. *Comprehensive Graphic Arts.* Old Tappan, NJ: MacMillan Publishing Co., 1974.

E. *Guide to Copyright, New Law, New Directions*: Washington, DC: Association for Education Communication and Technology, and National Audio-Visual Association, 1977.

SUGGESTED SUPPLEMENTAL MATERIAL

Slide Presentation—Proofreading (5086). 59 color, 35-mm slides.

Available from:

Graphic Arts Technical Foundation
4615 Forbes Avenue
Pittsburgh, PA 15213-3796
Telephone (412) 621-6941
www.gatf.com/products.html
or
E-mail Training@gatf.lm.com

PROOF PROCEDURES AND LEGAL CONSIDERATIONS
UNIT X

ANSWERS TO ASSIGNMENT SHEET

Assignment Sheet #1

Proofreading is the art of checking cop y fore errors and indicating the corrections
to be made. Ideally, proofreading is done by two peoples. One is the *copy holder* who
# reads aloud fromthe original copy to the proof reader. The other, called the *proofreader*,
follows the reading proof and marks any corrections necessary.

no¶ Sometimes, however, the proofreader wrks alone, checking the original copy against
the proof.

Proofreaders marks (also *proof marks*) are the symbols used bythe proofreader to #
wf indicate the corrections necessary *in* the proof. Examples of the msot commonly used tr
proof marks are shown on the following page ⊙

PROOF PROCEDURES AND LEGAL CONSIDERATIONS
UNIT X

TEST

Name ______________________________ Score ________________

1. Match the terms on the right with their correct definitions.

_____a. Customer signature approving a proof and authorizing the job to advance to the next stage

_____b. Reading copy on a proof and marking any errors or flaws for correction

_____c. Symbols and abbreviations used by proofreaders to indicate corrections necessary in the proof

_____d. A trial reproduction of type and illustrations to reveal errors or flaws

_____e. A line drawn from error in proof to symbol for error in nearest margin

_____f. Any change made because of printer or typesetter error

_____g. Any change in a proof not cause by typesetter's or printer's error; the author pays the charges

_____h. A written or pictorial statement that conveys an unjustly unfavorable impression

_____i. Form of protection given by law to authors of literary, dramatic, musical, artistic, and other similar works

_____j. A limitation on the exclusive rights of copyright owners

_____k. Using copyrighted material in such a way as to reduce the profits that would otherwise be received by the copyright holder

_____l. Writing or illustrations considered obscene

1. AA
2. Copyright
3. Counterfeiting
4. Fair use
5. Infringement
6. Libel
7. Path line
8. PE
9. Pornography
10. Proof
11. Proof OK
12. Proofreader marks
13. Proofreading

TEST

_____m. Making an imitation or copy of a genuine article (money, painting, etc.) with the intent to deceive

2. Select true statements concerning reasons for pulling proofs by placing an "X" next to the true statements.

_____a. Every job should be checked and double-checked only by the customer.

_____b. Proofs help determine who is responsible for mistakes and should pay for correcting them.

_____c. If a proof is OK'd, the customer authorizes the next stage in the production sequence.

3. Distinguish among types of proofs by writing the correct numbers in the blanks.

_____a. Proof of a paste-up made on a photocopier to eliminate distractions and preserve the original.

_____b. Proof made to detect and eliminate errors made by the typesetter; may be made with laser printer, on proof press, or visually edited on computer screen.

_____c. Expensive proof intended primarily for color separations.

_____d. Prepress, photographic proof of all pages that is used if there are elements that will not show on a photocopy.

_____e. Proof made on the press using the plates, paper and ink specified for the job; used primarily for premium four-color jobs.

1. Galley proof
2. Color proof
3. Press proof
4. Page proof
5. Blueline or brownline proof

4. Match the proofreaders' marks on the right with their correct meanings.

_____a. Wrong font

_____b. Delete

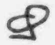
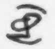
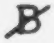
_____c. Set in roman type

_____d. Close up

_____e. Set in bold face type

1. ⁐
2. #
3. *wf*
4. *bf*
5. *rom*

TEST

_____f.	Delete and close up	6.	ital
_____g.	Insert space	7.	
_____h.	Set in italic type	8.	
_____i.	Run in same paragraph	9.	
_____j.	Lowercase letter	10.	
_____k.	Transpose	11.	⊔
_____l.	Insert comma	12.	no¶
_____m.	Lower	13.	tr

5. Select true statements concerning reading, marking and correcting galley proofs by placing an "X" next to the true statements.

    _____a. The objective of reading galley proofs is to discover errors and flaws.

    _____b. The two methods of marking copy are the path line method and the corresponding margin marks method.

    _____c. When correcting cold type composition, reset a whole word, line or paragraph, not just a character.

6. Select true statements concerning legal restrictions by placing an "X" next to the true statements.

    _____a. Printers and customers must be on guard to prevent becoming involved in legal matters relating to copyrighting, counterfeiting and pornography.

    _____b. A new copyright law went into effect on January 1, 1978.

    _____c. Copyrighted work is protected for the author's lifetime.

7. Name the three elements of copyright notice.

    a. ____

    b. ____

    c. ____

TEST

8. Select true statements concerning the tests for judging the "fair use" of copyrighted material by placing an "X" next to the true statements.

_____a. One test for judging "fair use" is the amount of material used in relation to the total material.
_____b. One must consider the nature of the copyrighted works.
_____c. The literary significance of the work must be considered.
_____d. The effect of the use on the commercial market value of the material must be considered.

9. Select from the following list items that may be copyrighted by placing an "X" in the appropriate blanks.

_____a. Maps
_____b. Motion pictures
_____c. Greeting cards
_____d. Time cards
_____e. Photographs

10. Select from the following list items that are not eligible for copyright by placing an "X" in the appropriate blanks.

_____a. Names
_____b. Familiar designs
_____c. Newspapers
_____d. Paintings
_____e. Graph paper

11. Select true statements concerning the provisions for using photographs of people for advertising purposes by placing an "X" next to the true statements.

_____a. In using pictures of children, written permission of legal guardian must be obtained.
_____b. Permission is not needed if faces are recognizable.
_____c. Failure to obtain written permission may result in claim of invasion of privacy and demand for payment.

PROOF PROCEDURES AND LEGAL CONSIDERATIONS
UNIT X

ANSWERS TO TEST

1. a. 11
   b. 13
   c. 12
   d. 10
   e. 7
   f. 8
   g. 1
   h. 6
   i. 2
   j. 4
   k. 5
   l. 9
   m. 3

2. b, c

3. a. 4
   b. 1
   c. 2
   d. 5
   e. 3

4. a. 3
   b. 7
   c. 5
   d. 1
   e. 4
   f. 8
   g. 2
   h. 6
   i. 12
   j. 10
   k 13
   l. 9
   m. 11

5. a, b, c

6. a, b

7. a. The word "copyright", the abbreviation "copr.," or the symbol ©
   b. The name of the copyright owner
   c. The year of publication

8. a, b, d

9. a, b, c, e

10. a, b, e

11. a, c

GI-T175

PROOF PROCEDURES AND LEGAL CONSIDERATIONS
UNIT X

UNIT EVALUATION FORM

Student Name ______________________________ Unit Rating ____________

Assignment Sheet Ratings

Assignment Sheet #1—Read and Mark Proof Copy Rating ___________

Comments: ____

____

Written Test Scores

Pretest _____ Posttest _____ Other _____

Other ____

____

Teacher Signature ___________________________ Date ___________

Student Signature ___________________________ Date ___________

*Permission to duplicate this form is granted

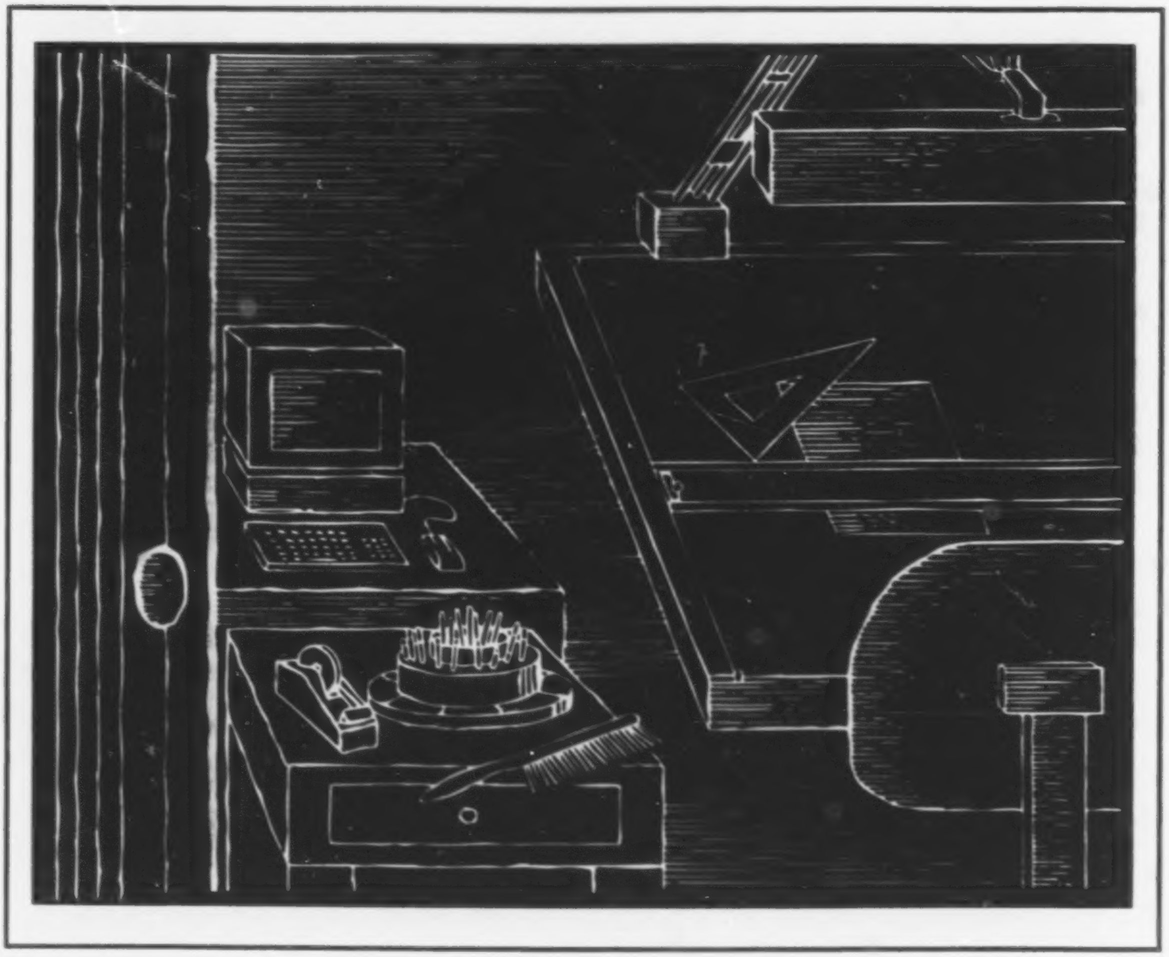
Proofreaders' Marks

ꝺ	Delete
ꝺ͡	Delete and close up
9	Turn inverted letter
⁀‿	Close up
#	Insert space
√√√	Equalize spacing
less #	Reduce spacing
¶	Paragraph
□	Indent one em
[	Move to left
]	Move to right
⊔	Lower
⊓	Elevate
∧	Insert marginal addition
X	Broken letter
⊥	Push down space
═	Straighten
‖	Align type
∧,	Insert comma
∨'	Insert apostrophe
∨"	Insert quotes
(/)	Insert parentheses
[/]	Insert brackets
∧3	Insert inferior figure
∨3	Insert superior figure
=/	Hyphen

|em|	Em dash
|en|	En dash
;/	Insert semicolon
:/	Insert colon
⊙	Insert period
?/	Insert question mark
(?)	Query to author
⌢	Use ligature
(sp)	Spell out
tr	Transpose
set 1, 2, 3	In this order
wf	Wrong font
bf	Set in bold face type
rom	Set in roman type
ital	Set in italic type
Caps	Set in capitals
sc	Set in small capitals
lc	Set in lower case
B/	Lower-case letter
stet	Let it stand
no ¶	Run in same paragraph
ld>	Insert lead between lines
hr #	Hair space between letters
out sc	Out–see copy
#	End of copy

GRAPHIC ARTS

ORIENTATION COMPOSITION PASTE-UP



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STUDENT EDITION

MAVCC

Graphic Arts

Orientation, Composition, and Paste-Up

Third Edition

Student Edition

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Graphic Arts
Orientation, Composition, and Paste-Up
Third Edition

Student Edition

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ORIENTATION
UNIT I

UNIT OBJECTIVE

After completion of this unit, the student should be able to identify major areas of specialization in the printing trade and personal traits and related skills important for successful printers. Competencies will be demonstrated by completing the assignment sheets and the unit test with a minimum score of 85 percent.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Select major areas of specialization in the graphic arts trade.
2. Name types of organizations that employ printers.
3. Select true statements concerning personal traits important for successful printers.
4. Select related skills important for successful printers.
5. Distinguish between the advantages and disadvantages of an occupation in graphic arts.
6. Determine graphic arts employment opportunities. (Assignment Sheet #1)
7. Interview graphic arts employees. (Assignment Sheet #2)
8. Visit a printing shop. (Assignment Sheet #3)

ORIENTATION
UNIT I

INFORMATION SHEET

I. **Major areas of specialization in the graphic arts trade** (Transparency 1)

   A. Sales and customer service

   B. Writing, design and layout

   C. Desktop publishing

   D. Proofreading

   E. Paste-up

   F. Graphic arts photography

   G. Stripping and imposition

   H. Platemaking

   I. Printing

   J. Folding, binding and finishing

   (NOTE: Computerization has been introduced into virtually every facet of graphic arts production.)

II. **Types of organizations that employ printers**

   A. Commercial printing plants

   B. In-house printing plants

   C. Newspapers

   D. Magazine publishers

   E. Book publishers

   F. Yearbook publishers

   G. Greeting card publishers

   H. Business form printers

INFORMATION SHEET

I. Financial and legal printers

J. Packaging manufacturers

K. Specialty shops

Examples: Quick printers, design shops, typesetters, color separation services, bindery/finishing services

L. Advertising agencies and public relations firms

M. Printing supply firms

N. Printing machinery companies

O. Paper merchants

P. State/Federal agencies

Q. Universities/Colleges

III. Personal traits important for successful printers

A. Ability to listen and to follow instructions well

B. Punctuality

C. Dependability

D. Ability to accept constructive criticism

E. Desire for success

F. Ability to work well with others

G. Mechanical ability

H. Trustworthiness

I. Willingness to continue education

IV. Related skills important for successful printers

A. Ability to operate printing equipment correctly

B. Accuracy

C. Speed

INFORMATION SHEET

- D. Neatness
- E. Ability to work without direct supervision
- F. Desire for perfection
- G. Willingness to work shifts, weekends, overtime

V. Advantages and disadvantages of an occupation in graphic arts

- A. Advantages
  - 1. Open job market
  - 2. Rapidly growing industry
  - 3. Quick advancement and pay increases
  - 4. Available overtime opportunities
  - 5. Comfortable indoor working conditions
  - 6. Variety of challenging tasks
  - 7. Sense of pride and satisfaction
- B. Disadvantages
  - 1. Close work confinement
  - 2. Pressure of work deadlines
  - 3. Rigid standards for accuracy
  - 4. Long hours during peak production periods
  - 5. Most good employment opportunities are confined to metropolitan areas.

ORIENTATION
UNIT I

STUDENT SUPPLEMENT 1 --DRAMATIC CHANGES FOR THE FUTURE

The printing industry has been undergoing unprecedented change and will continue to do so. Digital technology, economic restructuring, global competition, market shifts, emerging new media, and other forces are combining to dramatically change the operating environment. The printing industry, like many other industries, is in a difficult transition period, moving from the prosperity of a mature industrial society to the uncertainty of an emerging information society.

There are two major factors driving these changes. First, technology, particularly the digitization of data, is reshaping the communications industries. At the least, it is changing where and how existing products are produced. The changes stretch beyond this to the form of products and the role that printers play. At the extreme, they will redefine how we communicate as we experience the convergence of computers, telecommunications and television, and the creation of "multimedia" and the so-called "information superhighway."

The second factor is the rapid restructuring of the North American economy and global competition which creates modest overall economic growth instead of the steady strong growth experienced in the U.S. and western Europe during the last 50 years.

The printer's role in this new "digital," "global" future is still evolving, although most foresee a blurring of the difference between printers, broadcasters, software and hardware developers, and others. The term "printer" with its implied "ink on paper" will be increasingly inappropriate. The traditional prepress services are evolving into a distinctive imaging business with the potential of feeding a wide range of media, only one of which will be print. Increasingly, printers' reliance on ink on paper for sales and profits will shift to new products and services focused on the integration of data and multimedia.

John Walter, Chairman and chief-executive-officer of R. R. Donnelley, has indicated that, in his view, as much as 50 percent of the sales revenues of printers in the year 2000 and beyond may be from products and services they do not produce today. The implication is that many of today's printed products and printing services will decline in use while both new products and services and alternative electronic ways of publishing information will be developed and grow in use. Printers already are producing alternative media with many involved in software production, compact disk read-only memory (CD-ROM) production, data and text storage and print-on-demand, and a small percentage in video production.

Printers are redefining their business to one of identifying customers' changing communication needs brought about by the digital processing and storage of information and delivering it through the most effective distribution channel. Since printers are already well established in imagery, they are well positioned to participate in the new channels as they develop.

STUDENT SUPPLEMENT 1—DRAMATIC CHANGES FOR THE FUTURE

CHANGES TO INDUSTRY STRUCTURE AND PROFITS

The printing industry, like many others, is undergoing a rapid restructuring as a result of technological changes and market forces. Over the past 30 years industry profitability has moved in cycles corresponding roughly to industry investment cycles. With the current need to invest in new digital technology coinciding with a slowing of market growth, printing firm profits will be squeezed further for the remainder of the decade and into the new century. The implications for industry structure and profitability are:

1. The number of larger printing plants is declining. Large printing firms are becoming larger, at the expense of less well-managed large companies and medium-size firms.

2. Technology and other trends favor entrepreneurial smaller printers. However, the less innovative of these smaller printers will face serious problems in a slow-growth business environment. So, when the number of smaller printers and related firms continue to grow, the rate of failure for less well-managed small firms could be quite high. Medium-size firms, particularly those without well-defined specialty niches, will continue to be squeezed by firms of all sizes with specialized equipment.

3. The impact on industry profitability is a continuation of the pressure on overall industry profit margins. However, the profit leaders will continue to make attractive profits and the remainder of firms will feel most of the squeeze on profits.

THE PRINTER'S BRIDGE TO A DIGITAL FUTURE

Survival for the printer in the 21st Century will depend upon how well one integrates the following two broad issues into a career.

1. First, all printers will have to address the question of how their internal operations are interconnected digitally and how they are also connected to their customers and suppliers. The question involves connecting through telephone or private data networks to customers and suppliers; the considerations here are productivity, profitability, and customer demands for rapid service.

2. Second in the long run, higher growth opportunities will be available in new rather than traditional media. Printers of all sizes are already producing CD-ROM products, interactive catalogs, and the like, but smaller printers serving specializing markets also have opportunities to experiment with new media today; with minimal effort, pages designed to be printed on paper may also be pages designed to be displayed on a computer screen, or a World Wide Web "home page" display. The greater acceptance and use of personal computers, for instance, the greater the opportunities for some printers to move into this medium.

STUDENT SUPPLEMENT 1—DRAMATIC CHANGES FOR THE FUTURE

In short, if your view of the printing industry is confined only to "ink on paper" impression technology, chances are good you will find yourself seeking employment more frequently during your career than an individual whose vision and skills include flexibility and the ability to adapt to non-traditional business opportunities. After all, as the saying goes, "Change is the only constant in this world."

ORIENTATION
UNIT I

ASSIGNMENT SHEET #1 – DETERMINE GRAPHIC ARTS EMPLOYMENT OPPORTUNITIES

Name ______________________________ Score ______________

Evaluation criteria	**Rating**
• Information is accurate	____
• Student effort in project is evident	____
• Student offered valid reasons for selecting a job of interest	____
• Assignment was completed on time	____
• Assignment was neat and legible	____

Directions: Using the want ads from a local newspaper, determine as many employment opportunities as possible related to the graphic arts industry in your community. List these jobs and the places of employment below.

	Job	**Type of Company**
1.	____________________	______________________________
2.	____________________	______________________________
3.	____________________	______________________________
4.	____________________	______________________________
5.	____________________	______________________________
6.	____________________	______________________________
7.	____________________	______________________________
8.	____________________	______________________________

ASSIGNMENT SHEET #1

How many job listings were you able to find? ______________________________

In which job are you the most interested? ______________________________

Explain why. ______________________________

____

____

____

ORIENTATION
UNIT I

ASSIGNMENT SHEET #2 – INTERVIEW GRAPHIC ARTS EMPLOYEES

Name ______________________________ Score ______________

Evaluation criteria	Rating
• Information is presented in a clear, concise manner	_____
• Assignment was completed on time	_____
• Assignment was neat and legible	_____

Directions: Interview people in skilled positions, as well as those in management, at a local printing plant to determine information that would help you in better understanding this trade. Ask each person you interview the following questions.

1. What is your position? ______________________________
2. What are the job responsibilities? ______________________________
3. What are the advantages of this job? ______________________________
4. What are the disadvantages of this job? ______________________________
5. What training requirements are needed to be employed in this job? __________
6. What is the approximate salary? ______________________________
7. What other information should a prospective employee in the graphic arts know about this job? ______________________________

ORIENTATION
UNIT I

ASSIGNMENT SHEET #3 – VISIT A PRINTING SHOP

Name ______________________________ Score ______________

Evaluation criteria	Rating
• Information is presented in a clear, concise manner	____
• Information is accurate portrayal of shop visited	____
• Assignment was completed on time	____
• Assignment was neat and legible	____

Directions: Visit a local commercial or in-house printing shop or the production facility for a newspaper or magazine.

1. Attempt to locate the nine graphic arts phases: writing, design and layout; desktop publishing; proofreading; paste-up; graphic arts photography; stripping and imposition; platemaking; printing; and folding, binding and finishing.
2. Ask the printing plant representative why each graphic arts phase is physically located where it is. Has it been changed recently?
3. Complete the chart on the next page.

ASSIGNMENT SHEET #3

GRAPHIC ARTS PHASE	LOCATION	WHY LOCATION WAS CHOSEN

SHOP SAFETY
UNIT II

UNIT OBJECTIVE

After completion of this unit, the student should be able to read a Material Safety Data Sheet, identify and follow correct shop safety practices. Competencies will be demonstrated by completing the assignment sheets and the unit test with a minimum score of 100 percent.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with shop safety with the correct definitions.
2. Select true statements concerning proper safety rules to be practiced in the shop.
3. Complete statements concerning the steps in maintaining a safe and orderly shop.
4. List examples of personal protective equipment which might be required in a print shop.
5. Select true statements concerning toxic chemical safety rules.
6. List types of information on a Material Safety Data Sheet.
7. List the five kinds of safety hazards.
8. Select true statements concerning things OSHA expects of an employer.
9. Select true statements concerning things OSHA expects of an employee.
10. Match the colors of the safety color code with the correct designations.
11. Match the classes of fires with the correct definitions.
12. Match types of fire extinguishers with their uses.
13. List the general guidelines for first aid emergencies.
14. Complete a student safety pledge form. (Assignment Sheet #1)
15. Survey the shop and identify correct safety practices. (Assignment Sheet #2)
16. Read a Material Safety Data Sheet. (Assignment Sheet #3)
17. Draw a floor plan and locate safety equipment in your shop. (Assignment Sheet #4)

SHOP SAFETY
UNIT II

INFORMATION SHEET

I. **Terms and definitions**

- A. Accident – Any suddenly occurring, unintentional event which causes personal injury or property damage
- B. Combustibles – Materials or liquids that catch fire easily
- C. First aid – Immediate, temporary care given the victim of an accident or sudden illness until the services of a physician can be obtained
- D. Hazard – A potential source of danger
- E. Material Safety Data Sheet (MSDS) – Written or printed material concerning a hazardous chemical
- F. Occupational Safety and Health Administration (OSHA) – Federal agency established to ensure safe and sanitary working conditions for employees
- G. Right-To-Know – Statutory right of access to every public record of a state or federal agency
- H. Safety – State or condition of being safe; freedom from danger, risk, or injury

II. **Shop safety rules**

- A. Conduct yourself in a manner conducive to safe shop practices.
- B. **Do not** use any equipment until you understand how to use it.
- C. Operate any presses or electrically powered equipment only after obtaining the approval of your instructor.
- D. **Never** walk away from equipment that is running.
- E. Always keep your hands away from a machine's moving parts.
- F. Use the correct tools and equipment when doing a job.
- G. Limit the operation of the paper cutter, paper drill, and stitcher to one person at a time.

INFORMATION SHEET

H. Tie back all long hair prior to operating any press or power equipment.

I. Remove ties, scarves, loose clothing, rings and other jewelry before operating any press or power equipment.

J. **Do not** sit or lean on light tables.

K. Avoid touching or looking directly at light sources.

L. Wear eye protection in areas where flying objects and splashing solutions are possible.

M. Wear hearing protection when subjected to continuous loud noise.

N. Wash hands and arms with soap and water frequently to help prevent skin irritation from inks and solvents.

O. **Do not engage** in horseplay, scuffling, or practical joking in the classroom or shop.

P. Use the "buddy system" when working in the graphics laboratory.

III. Maintaining a safe and orderly shop

A. Report any unsafe condition in the shop immediately.

B. Arrange all machinery and equipment to permit safe and efficient operation.

INFORMATION SHEET

- C. Keep materials and supplies safely stacked and stored.
- D. Keep all tools and accessories in cabinets or tool racks.
- E. Dispose of or store all combustible materials in safe containers.
- F. Keep all floors clean and free of debris at all times.
- G. Check that adequate housekeeping equipment and cleaning materials are on hand to ensure that maximum cleaning efficiency can be maintained.
- H. Participate in daily cleanup periods.

IV. Personal protective equipment

- A. Safety glasses
- B. Earplugs
- C. Face shields
- D. Steel-toe shoes
- E. Protective gloves

V. Safety rules regarding toxic chemicals

(NOTE: Depending upon the size of the printing plant and the types of waste products generated there, regulations concerning how wastes are to be disposed differ. Many operations recycle paper, trimmings, lithography film and processing fluids to recover some costs from wastage. Others, in addition to recycling, may be mandated to maintain approved containers for storage of used inks, solvents and press washdown fluids. In any case, the astute employee will be interested in the employer's policies concerning the disposal of wastes and materials various agencies might label toxic, hazardous, or otherwise worthy of special handling.)

- A. Work in a well-ventilated area.
- B. Wear protective gloves and aprons when handling chemicals.
- C. Wear protective splash-proof goggles when working with acids and caustic chemicals.
- D. Know the dangers of each chemical.

INFORMATION SHEET

E. Pour chemical into water, never water into chemical.

(NOTE: Some chemicals react violently to water or to having water added to them. Pouring the chemical into water ensures a rapid dilution, whereas pouring water into a chemical could cause splashing or boiling.)

F. Read container labels carefully before using products.

(CAUTION: Do not use products that are not labeled.)

G. Store chemicals on lower shelves or locked metal cabinets.

(NOTE: Be sure cabinets are located in an area that meets local, state, and national codes.)

VI. Types of information on a Material Safety Data Sheet
(Student Supplement 1)

A. Chemical name

B. Hazardous ingredients/chemical identity

C. Physical characteristics

D. Fire and explosion data

E. Reactivity

F. Health hazards

G. Usage, handling, and storage

H. Special protection and precautions

VII. Kinds of safety hazards

A. Mechanical

B. Fire

C. Chemical

D. Light

E. Noise

INFORMATION SHEET

VIII. **Things OSHA expects of an employer** (Transparency 1)

A. Provide a hazard-free workplace and comply with occupational safety and health standards.

B. Inspect job sites to assure they meet safety standards.

C. Use properly color-coded signs to warn of danger.

D. Obtain a Material Safety Data Sheet (MSDS) for each hazardous chemical present in the workplace and make sure any chemical containers are properly labeled and that MSDSs are readily accessible to employees.

E. Formulate and implement a training program for employees that informs them of any and all chemical substances to which they are exposed and trains them in the proper handling of such substances.

F. Keep required records of work-related injuries and post an annual summary in February of each year.

G. Report to OSHA within 48 hours any accident which is fatal or hospitalizes five or more workers.

H. Post in a prominent place OSHA poster #2203 informing workers of their rights and responsibilities.

IX. **Things OSHA expects of an employee**

A. Read the OSHA poster #2203 and comply with its standards.

B. Follow employer safety and health rules and wear prescribed clothing or protective equipment on the job.

C. Report any hazardous conditions to a supervisor.

D. Report all job-related injuries to a supervisor and seek prompt treatment if required.

E. Report to OSHA in a responsible manner any hazardous working situations which you feel the employer has not attended to properly.

INFORMATION SHEET

X. Colors and designations of the safety color code

A. Green—Designates location of safety and first aid equipment

B. Yellow—Designates caution and marks physical hazards

EXAMPLES: Operating levers, handles, areas where tripping would be hazardous, waste containers for combustible materials

C. Orange—Designates dangerous parts of equipment which may cut, crush, shock, or otherwise injure

EXAMPLES: Electrical switches, fuses, electrical power boxes, movable guards

D. Red—Designates location of fire fighting equipment

EXAMPLES: Emergency fire exits, fire extinguishers; also emergency stop switches on machinery, portable containers of flammable liquids

E. Blue—Designates caution against starting equipment while it is being worked on or use of defective equipment

F. Ivory—Highlights an area that might otherwise not be noticed

EXAMPLES: Edges of tools, vise jaws, label edges

INFORMATION SHEET

XI. Types of fires and their classifications (Transparency 2)

A **Class A** (Green) • Ordinary combustibles	B **Class B** (Red) • Flammable liquids and gases
C **Class C** (Blue) • Live electrical equipment	D **Class D** (Yellow) • Combustible metals

A. Class A—Fires that involve ordinary combustible materials

EXAMPLES: Wood, rags, paper, trash

B. Class B—Fires that involve flammable liquids

EXAMPLES: Blanket wash, gasoline, oil, grease

C. Class C—Fires that involve electrical or electronic equipment

EXAMPLES: Motors, switchboards, electrical wiring

D. Class D—Fires that involve combustible metals

EXAMPLES: Powdered aluminum and magnesium

INFORMATION SHEET

XII. Types of fire extinguishers and their uses (Transparency 3)

Type of Fire	Approved Type of Extinguisher				
	Pressurized Water	Carbon Dioxide	Multi-Purpose Dry Chemical	Halon Gas	Foam
Class A Fires ORDINARY COMBUSTIBLES • Wood • Paper • Cloth, etc.					
Class B Fires FLAMMABLE LIQUIDS, GREASE • Gasoline • Paints • Oils, etc.					
Class C Fires ELECTRICAL EQUIPMENT • Motors • Switches, etc.					

A. Foam—Spray above fire, allowing foam to fall lightly on the fire; use for class A or class B fires.

(CAUTION: Do not spray a stream directly into the fire.)

B. Carbon dioxide—Direct discharge as close to fire as possible, first at the edge of flames, then gradually forward and upward; use for class B or class C fires.

C. Pressurized water—Direct stream at base of fire; use for class A fires only.

D. Dry chemical—Direct at the base of the flames, then follow up by directing at remaining materials that are burning; use for class A, class B, or class C fires.

E. Halon—Stand back several feet, hold container upright and direct at the base of fire, sweeping from side to side; use for class B or class C fires.

(NOTE: Halon is a clean, pressurized, liquefied gas which does not leave a residue.)

(CAUTION: A high concentration of burned halon gas may be hazardous to your health.)

INFORMATION SHEET

XIII. General guidelines for first aid emergencies

A. Turn off power.

B. Administer first aid.

(CAUTION: Be sure you have a valid reason for any first aid you administer.)

C. Reassure the injured person that everything possible is being done.

(NOTE: Hearing the concerned voice of a co-worker is psychologically comforting to an injured person and may actually lessen the possibility of the onset of shock.)

D. Report all accidents and injuries to your instructor or jobsite supervisor, no matter how minor they may seem.

(NOTE: Follow emergency procedures that have been adopted by the local school board.)

E. Make accurate notes about the accident including name of victim, time, place, cause or nature of the accident, and any first aid that was administered.

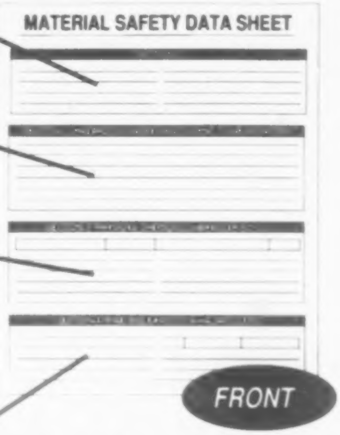
(NOTE: It is the responsibility of the school, the jobsite supervisor, or the medical facility to notify the victim's family.)

SHOP SAFETY
UNIT II

STUDENT SUPPLEMENT 1—READING MATERIAL SAFETY DATA SHEETS

Effective Protection You Can Depend On

The Material Safety Data Sheet, or MSDS, is written information that can help protect you from overexposure to chemicals you find on the job. The MSDS is part of your company's Hazard Communications Program. Each company can design its own MSDS form, and the sections may be in different order. But, the basic kinds of information on any MSDS will be the same.



Chemical Name

Lists the identity of the substance (the name on the label), date the MSDS was prepared, the name and address of the manufacturer, and usually a phone number for emergencies and more information.

Hazardous Ingredients/Chemical Identity

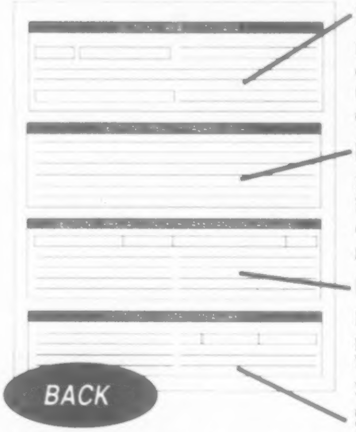
Includes names of substances in the chemical that might be dangerous, and safe exposure limits such as Permissible Exposure Limit or PEL (set by OSHA) or the Threshold Value Limit or TVL. Also lists common names for the chemical.

Physical Characteristics

Describes many physical qualities of the chemical, and lets you know what's usual or safe. For example, how the chemical looks and smells; boiling and melting temperatures (important in case a chemical might become a gas you could breathe); evaporation rate (known as percent volatile); how easily the chemical dissolves; and how heavy it is (this tells you if it will sink, float, or dissolve in water.)

Fire and Explosion Data

Tells you the lowest temperature when the chemical could catch fire ("flash point"). Lets you know if it's flammable (catches fire below 100° F) or combustible (catches fire above 100° F). Lists the best way to put out a fire involving that chemical.



Reactivity

Describes what happens if this chemical comes in contact with air, water, or other chemicals. Describes conditions (like heat) or materials (like water) that can cause the chemical to react by burning, exploding, or releasing dangerous vapors. The chemical is called "incompatible" or "unstable" with these conditions or substances.

Health Hazards

Lists ways the chemical might enter your body, like splashing on your skin or being breathed in as vapor as well as possible symptoms of overexposure. Lets you know if overexposure might make existing medical conditions worse, and describes emergency first aid procedures.

Usage, Handling, And Storage

Describes how to clean up an accidental spill, leak, or release, including special procedures. Tells you how to handle, store, and dispose of chemicals safely. Remember, if there is an accident, notify your supervisor immediately, and take care of it yourself only if you are trained to do so and are wearing the proper equipment.

Special Protection And Precautions

Explains special Personal Protective Equipment (PPE) and other equipment to use when working with the chemical, special procedures, extra health or safety information, signs that should be posted, and other information not covered in other sections.

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SHOP SAFETY
UNIT II

ASSIGNMENT SHEET #1—COMPLETE A STUDENT SAFETY PLEDGE FORM

Name ______________________________ Score ____________

Evaluation criteria	**Rating**
• Student completed safety pledge form	_____

____________________, who is enrolled in Vocational ____________________

__________________________, will, as a part of his/her shop experience, operate

machines, providing that the parent or guardian gives written permission.

It is important that each student will be given proper instruction, both in the use of the equipment and in the correct safety procedures concerning it, before being allowed to operate it. The student must assume responsibility for following safe practices, and we therefore ask that the student subscribe to the following safety pledge.

1. I promise to follow all safety rules for the shop.
2. I promise never to use a machine without first having permission from the instructor.
3. I will not ask permission to use a particular machine unless I have been instructed in its use, and have scored 100% on the safety test for that machine.
4. I will report any accident or injury to the teacher immediately.

Date ______________ Student's signature __________________________

I hereby give my consent to allow my son or daughter to operate all machines and equipment necessary in carrying out the requirements of the course in which he/she is enrolled.

Date ______________ Parent's signature __________________________

Parents are cordially invited to visit the shop to inspect the machines and to see them in operation.

SHOP SAFETY
UNIT II

ASSIGNMENT SHEET #2—SURVEY THE SHOP AND IDENTIFY CORRECT SAFETY PRACTICES

Name ______________________________ Score ____________

Evaluation criteria	**Rating**
• Student participated in shop survey	_____
• Student completed questionnaire	_____
• Student answered questions correctly	_____

A. What safety practices are being used in your shop to promote general safety?

____

____

____

B. What practices are used to maintain an orderly shop?

____

____

____

C. Where is your shop fire extinguisher located; what type is it; and on what kinds of fires may it be used?

____

____

____

D. Where is your shop first aid kit located? Who is permitted to use it?

____

____

ASSIGNMENT SHEET #2

E. What equipment and machines in your shop must you have separate safety tests on before you are allowed to operate them?

____

____

F. What personal safety protection devices or clothing must you wear while working in the shop?

____

____

G. What procedure should you follow if you see an accident happen?

____

____

____

SHOP SAFETY
UNIT II

ASSIGNMENT SHEET #3—READ A MATERIAL SAFETY DATA SHEET

Name ______________________________ Score ____________

Evaluation criteria	Rating
• Student participated in assignment	____
• Student answered questions correctly	____

Directions: Carefully read through the following Material Safety Data Sheet and then use the MSDS to answer these questions.

1. What is the name of the substance? ______________________________

   ____

2. What potentially hazardous ingredients does it contain?

   ____

   ____

3. What possible injury could occur from external contact?

   ____

4. Is this substance heavier or lighter than water? ______________________________

5. What is its boiling range? ______________________________

6. What is its OSHA flammability classification? ______________________________

7. How should first aid for eye contact be administered?

   ____

   ____

8. Is this a stable product? ______________________________

9. What kind of protective equipment should be used when handling this substance?

   ____

   ____

ASSIGNMENT SHEET #3

10. What instructions are given for handling and storage of this substance?

____

____

ASSIGNMENT SHEET #3

MATERIAL SAFETY DATA SHEET
FOR PRINTING INK AND RELATED MATERIALS

Information on this form is proprietary information
solely for the use of our customers

DATE OF PREP. 11-25-85 PREPARED BY S. L. MAKI

HAZARD RATINGS
Minimal.....0
Slight........1
Moderate..2
Severe......4

HEALTH	3
FLAMMABILITY	0
REACTIVITY	0

SECTION I

MANUFACTURER'S NAME: Flint Ink Corporation
STREET ADDRESS: 25111 Glendale Avenue CITY, STATE AND ZIP CODE: Detroit, MI 48239-2689
EMERGENCY TELEPHONE NUMBER: (313) 538-6800
PRODUCT CLASS: Fountain Solution
TRADE NAME: MIRACLE "V-2020" CONCENTRATE MANUFACTURER'S CODE IDENTIFICATION: UW-W-35,UW-W020

Section II — HAZARDOUS INGREDIENTS

Ingredient:	Hazard Data:
Ethylene Glycol	TLV-Vapor 50ppm. Vapor & mist may be irritation to the eyes. Ingestion may cause central nervous system depression and also can cause liver or kidney damage.
Alkaline Phosphates & Silicates	Eye & skin irritation.

Section III — PHYSICAL DATA

BOILING RANGE °F 215-220	VAPOR DENSITY: HEAVIER X vs. air LIGHTER __	LIQUID DENSITY: HEAVIER X vs. water LIGHTER __	TYPE OF ODOR Antifreeze
APPEARANCE Liquid	EVAPORATION RATE FASTER __ vs. Butyl Acetate SLOWER X	PERCENT VOLATILE WT. 85-90%	

Section IV — FIRE & EXPLOSION DATA

FLAMMABILITY CLASSIFICATION OSHA Class IIIB FLASH POINT °F Greater than 200°F

LEL 3.2% for Ethylene Glycol

DOT Not regulated (Method Used) T.C.C.

EXTINGUISHING MEDIA:

X FOAM X ALCOHOL FOAM X CO2 X DRY CHEMICAL X WATER FOG X OTHER

UNUSUAL FIRE AND EXPLOSION HAZARDS
No fire hazard; nonflammable.

SPECIAL FIREFIGHTING PROCEDURES
Water may be used to cool containers to prevent pressure build-up.

ASSIGNMENT SHEET #3

SECTION V — HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE

This material is an eye irritant. Prolonged or repeated contact with skin will cause irritation; very alkaline. DO NOT INGEST.

PRIMARY ROUTE(S) OF ENTRY: X DERMAL X INHALATION

EMERGENCY AND FIRST AID PROCEDURES Eye contact: Flush immediately with large amounts of water for at least 15 minutes. Contact physician. Skin contact: Wash affected areas with soap & water. Remove contaminated clothing. Ingestion: Drink 1 or 2 glasses of water to dilute. DO NOT INDUCE VOMITING. Contact physician; treat symptomatically.

Section VI — REACTIVITY DATA

PRODUCT STABILITY X STABLE X UNSTABLE

CONDITIONS TO AVOID

Contact with strong oxidizers.

SECTION VII — SPILL OR LEAK PROCEDURES

PROCEDURE WHEN MATERIAL SPILLED OR RELEASED

Flush area with water. Wipe up and dispose of in approved containers.

WASTE DISPOSAL METHOD

In accordance with local, state and federal regulations.

Section VIII — SPECIAL PROTECTION INFORMATION

VENTILATION Normal for work area.

PROTECTIVE GLOVES Recommended

RESPIRATORY PROTECTION Not normally required with adequate ventilation.

EYE PROTECTION Recommended

OTHER PROTECTIVE EQUIPMENT None

Section IX — SPECIAL PRECAUTIONS

HANDLING AND STORING

Keep containers closed when not in use.

OTHER PRECAUTIONS

For industrial use only.

THIS FORM IS AN INDUSTRY SERVICE BY THE NATIONAL ASSOCIATION OF PRINTING INK MANUFACTURERS, INC
(Information on this form is supplied by the individual ink manufacturer)

NAPIM 4-35

SHOP SAFETY
UNIT II

ASSIGNMENT SHEET #4—DRAW A FLOOR PLAN AND LOCATE SAFETY EQUIPMENT IN YOUR SHOP

Name ______________________________ Score ______________

Evaluation criteria	Rating
• Student followed directions	_____
• Student's floor plan accurately represented the shop	_____
• All nine locations were correctly labeled and identified	_____
• Drawing is neat and labels are legible	_____

Directions: On a separate piece of paper, sketch a floor plan of your shop; make it large enough to provide the space to indicate the location of all of the following:

1. Indicate the location of all emergency exits and label those locations **EE**.
2. Indicate where all fire extinguishers are located and label those locations **FE**.
3. Indicate where the eye wash station is located and label that location **EW**.
4. Indicate where the nearest telephone is located and label the location **T**, and beside it write the emergency telephone number.
5. Indicate where the first aid kit is located and label the location **First Aid**.
6. Indicate the reassembly point following a fire drill and show its approximate location with respect to the shop by labeling the location **RP**.
7. Indicate the safe shelter for severe weather and show its approximate location with respect to the shop by labeling the location **Safe Shelter**.
8. Indicate the location of the solvent disposal area and label the location **Solvents**.
9. Indicate the location of the combustible storage area and label the area **CS**.

SHOP ORGANIZATION
UNIT III

UNIT OBJECTIVE

After completion of this unit, the student should be able to name production steps of a typical printing job and describe the duties of each worker. Competencies will be demonstrated by completing the assignment sheets and the unit test with a minimum score of 85 percent.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Name five main concerns of successful printing plant management.
2. Complete statements concerning strategies a manager can use to operate a graphic arts business.
3. Match job titles with descriptions of job duties.
4. Arrange in proper sequence the production steps of a typical printing job.
5. List items essential to proper job production control.
6. Arrange in proper sequence the steps for initiating a printing job.
7. Make an organizational chart of the school print shop. (Assignment Sheet #1)
8. Draw a floor plan locating production areas in the school print shop. (Assignment Sheet #2)

SHOP ORGANIZATION
UNIT III

INFORMATION SHEET

I. **Main concerns of successful printing plant management**

A. Safety

B. Cleanliness

C. Efficiency of operation

D. Quality

E. Profit

(NOTE: Keep in mind no business survives without being profitable. Therefore, profit, or the "bottom line" is a vital concern to successful printing plant management. That is not to say profit is more important than the other concerns listed, such as safety, efficiency, cleanliness, and quality. Without due concern for safety, injuries and lost-time accidents erase profits through inefficiency. Likewise, a lack of quality in the end product reduces return business or causes costly "remakes," which double costs and many times lose business. Also, without cleanliness, efficiency is reduced, again affecting net income and overall profitability. So, all management concerns should be aimed at long term survival and profitability of the operation.)

II. **Strategies a manager can use to operate a graphic arts business**

A. Use organization manuals to tell about the firm.

B. Provide organizational charts that show the chain of command and where people fit into the firm.

C. Set policies and rules to convey what employees can and cannot do.

D. Provide job descriptions to define workers' tasks.

E. Allow for two-way communication in which the manager talks to employees and employees may talk to the manager.

F. Use computer recordkeeping systems that permit quick retrieval of information about current and completed printing jobs.

(NOTE: A company cannot run itself. Good management is vital to the success of a graphic arts business.)

INFORMATION SHEET

III. Job titles and descriptions of job duties

A. Manager—Organizes and supervises production in the shop or plant

(NOTE: This role may also be titled supervisor, owner, superintendent, or foreman.)

B. Sales and customer service representatives—Initiate job orders and maintain good customer relations during and after the job

C. Estimator—Estimates the total cost of a printing job

D. Copywriters—Write the copy for printing jobs

E. Design personnel—Plan and arrange type and visual elements for the printing job

F. Photographer—Provides photographs and special photographic illustrations for jobs

G. Artists—Provide special art and illustrations for printing jobs

H. Mark-up personnel—Copyfit and mark the type, style, and size designations for printing

I. Desktop publishing personnel—Compose or set type according to mark-up specifications

J. Paste-up personnel—Assemble elements of a layout for reproduction

K. Proofreaders—Read the proofs at various stages of production to make sure there are no mistakes

L. Camera operators—Provide the film negative of the printing job

(NOTE: Camera operators also make proofs.)

M. Strippers—Tape the negatives in their proper place on the printing mask or flat

N. Platemakers—Expose the plate and develop it so it is ready for the press

(NOTE: Platemakers also proof materials.)

O. Press operators—Prepare press for operation and run the finished plate on the press.

P. Feeder and helper—Help press operator load paper table and unload delivery table

INFORMATION SHEET

Q. Bindery personnel—Complete bindery work, such as collating, folding, and stitching

R. Shipping personnel—Pack, label, and ship or deliver completed jobs

S. Filing personnel—File flats and plates in customer job files

T. Billing personnel—Make out invoices and bill customers for completed work

(Note: As technology revamps the entire graphic arts industry, new job titles and duties result as old positions become obsolete and computers and digital equipment replace older type and photo generation, storage and retrieval systems. By the mid-1990s some printing operations on the leading edge of technological advance were capable of producing text and photo-bearing pages at the desktop publishing phase and carrying the process directly to the press within the computer system--no camera operators, no strippers, no plate makers. Although the prospect of computer-to-press operations gravely concerns those individuals currently employed in soon-to-be obsolete technology, the competitive nature of the graphic arts industry demands computer equipment be used to reduce labor costs whenever possible.)

IV. **Sequence of production steps of a typical printing job** (Transparency 1)

A. Sales and estimate

B. Job order

C. Copywriter

D. Design

E. Mark-up

F. Desktop publishing

G. Proofreading

H. Paste-up

I. Proofreading

J. Camera

K. Stripping

L. Pre-press proofing

M. Platemaking

INFORMATION SHEET

N. Presswork

O. Binding and finishing

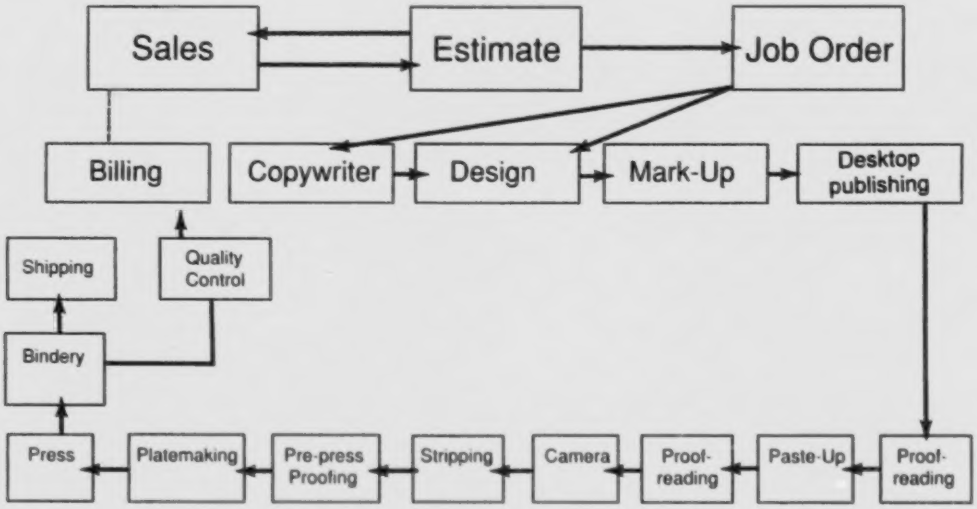
P. Quality control

Q. Packaging, shipping, and delivery

R. Billing

(NOTE: Computers are integrating increasing numbers of production steps.)

Production Flow Chart



V. **Items essential to proper job production control** (Transparencies 2, 3, and 4)

A. Job ticket

B. Log book with job numbers and/or computer spread sheet program

C. Identified job material folder (or envelope)

D. Computer record for job tracking through printing plant

INFORMATION SHEET

VI. Proper sequence for initiating a printing job

A. Fill out the complete job order form.

B. Enter job in log book or computer program, assign number.

C. Mark material folder, insert job order and job material.

(NOTE: Be sure all material is complete and note specialty items, photos, artwork, etc., needed for a job.)

D. Put folder in proper station of material job flow file. (Transparency 4)

SHOP ORGANIZATION
UNIT III

ASSIGNMENT SHEET #1—MAKE AN ORGANIZATIONAL CHART OF THE SCHOOL PRINT SHOP

Name ______________________________ Score __________

Evaluation criteria	Rating
• Student followed directions	_____
• Chart should accurately reflect that of the school and shop	_____
• Chart should be neat and legible	_____

Directions: Using a block diagram, make an organizational chart showing all departments and work station assignments in your school printing shop. Indicate the following:

1. School administration
2. Instructor
3. Instructor's aide
4. Shop supervisor (student)
5. Assistant shop supervisor (student)
6. Crew chiefs (students)
7. Work and clean-up stations (students)

SHOP ORGANIZATION
UNIT III

ASSIGNMENT SHEET #2—DRAW A FLOOR PLAN LOCATING PRODUCTION AREAS IN THE SCHOOL PRINT SHOP AND TRACE PRODUCTION FLOW THROUGHOUT

Name ______________________________ Score ________

Evaluation criteria	Rating
• Student followed directions	_____
• Production areas were placed correctly on map	_____
• Suggested changes were well-considered and justified	_____

Directions: On a separate sheet of paper, sketch and label a floor plan of your school print shop; make it large enough to provide the space to indicate the location of all of the following:

1. Job order department
2. Copywriting, design, and mark-up
3. Desktop publishing
4. Proofreading
5. Paste-up
6. Camera/darkroom
7. Stripping
8. Platemaking
9. Presses
10. Bindery
11. Storeroom

ASSIGNMENT SHEET #2

With arrows, indicate on your floor plan the production flow from the beginning of a job to the end. Based on the production flow, would you change anything to increase efficiency? Give your reasons.

____

____

____

____

____

PRINTING PROCESSES
UNIT IV

UNIT OBJECTIVES

After completion of this unit, the student should be able to identify the printing process used on printed pieces, identify the components of the offset press, and test the ink-water principle on an offset plate. Competencies will be demonstrated by completing the assignment sheets, job sheet, and the unit tests with a minimum score of 85 percent.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms related to printing processes with the correct definitions.
2. Select true statements concerning major printing processes.
3. Arrange in order the principal pre-press steps in offset printing.
4. Select true statements concerning the basic offset printing process.
5. Match the major printing processes with their advantages and uses.
6. Match the specialized printing processes with the correct descriptions.
7. Match finishing operations with the correct descriptions.
8. Name types of material on which printing is done.
9. Name methods of feeding paper into the press.
10. Identify printing processes used to reproduce different printed pieces. (Assignment Sheet #1)
11. Describe the offset printing process. (Assignment Sheet #2)
12. Demonstrate the ability to test the ink-water principle on an offset plate. (Job Sheet #1)

PRINTING PROCESSES
UNIT IV

INFORMATION SHEET

I. **Terms and definitions**

A. Blanket—In offset printing, a smooth rubber surface which transfers the image from the plate to the paper.

B. Blanket cylinder—The cylinder which holds the rubber blanket

C. Camera-ready-copy—A pasteup ready to be photographed for platemaking

D. Doctor blade—In gravure printing, a knife-edged blade pressed against the etched printing cylinder to wipe away the excess ink from the non-printing areas

E. Finishing—A variety of different operations and specialities performed in line with or after printing

F. Gravure (intaglio)—A printing process in which the image is etched below the surface of the printing plate.

G. Image area—That part of the plate which repels water and carries the ink to print the image

H. Impression cylinder—The cylinder which applies pressure for image transfer to the paper

I. Ink fountain—That part of the offset press that stores and supplies ink to the inking rollers

J. Letterpress (relief)—The process of printing from a raised surface

K. Make-ready—All the work involved in preparing printing materials for a particular job

L. Non-image area—That part of the plate which is bathed in water and carries only the background

M. Offset (photo-offset, lithography, offset lithography, planography)—The process of printing from a flat surface with the image and non-image areas kept separated by chemistry (grease and water don't mix)

N. Perfecting press—A printing press that prints both sides of the sheet in one pass.

O. Plate—A thin sheet of paper, metal, or plastic which carries the image

INFORMATION SHEET

P. Plate cylinder—The cylinder which holds the printing plate

Q. Sheet-fed press—A printing press that takes individual sheets of paper rather than rolls of paper

R. Water fountain—That part of the offset press that stores and supplies water to the dampening rollers

S. Web-fed (roll-fed) press—A press that prints from a roll of paper

II. **Major printing processes**

A. Letterpress (relief)

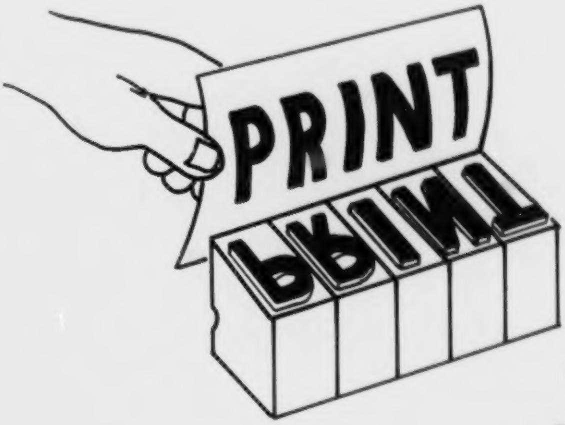
1. The oldest printing method

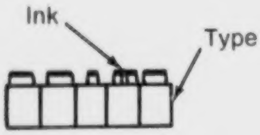
2. The raised image, when inked, is transferred when pressed against paper

3. Images are reversed (wrong-reading) on the letterpress plate; then printed, the image is read correctly (right-reading).

4. Recognizable by a ring of ink around each letter (seen with a magnifying glass), and a distinct embossing effect where type and other images press into the paper

(NOTE: This punched impression can be seen and felt on the reverse side of the printed page.)





INFORMATION SHEET

B. Gravure (intaglio)

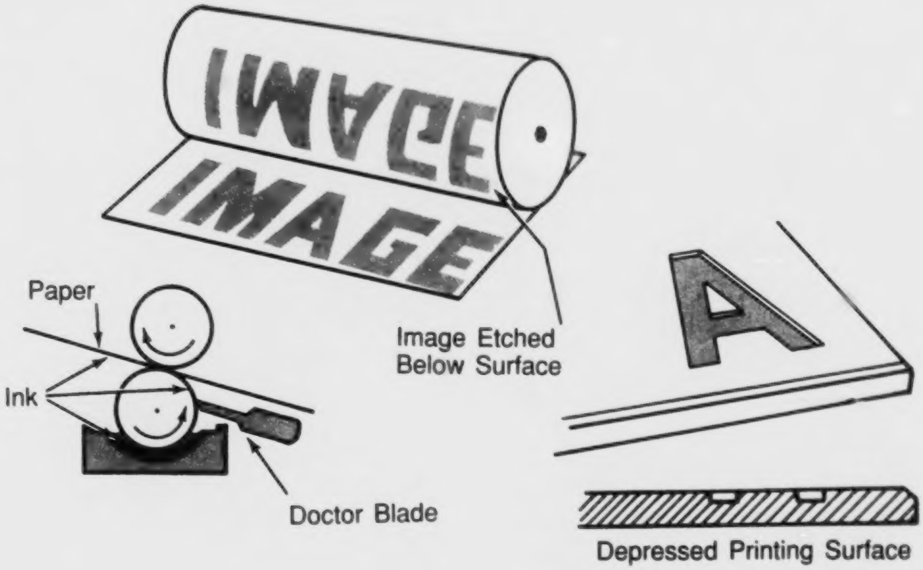
1. Second oldest printing process

   (NOTE: Before the advent of offset printing rotogravure was used extensively for "color sections" of newspapers and magazines.)

2. The entire surface of the plate or cylinder is inked and then wiped clean with a flexible steel scraper called a doctor blade, leaving ink only in the etched areas to come in contact with the paper to form the printed image.

3. Called rotogravure when the presses take paper on rolls rather than in sheets for long press runs

4. Recognizable by the fact the entire image area is screened, including the type which can look fuzzy; photographs have good detail with greater contrast between light and dark areas



C. Offset (photo-offset, lithography, offset lithography, planography)

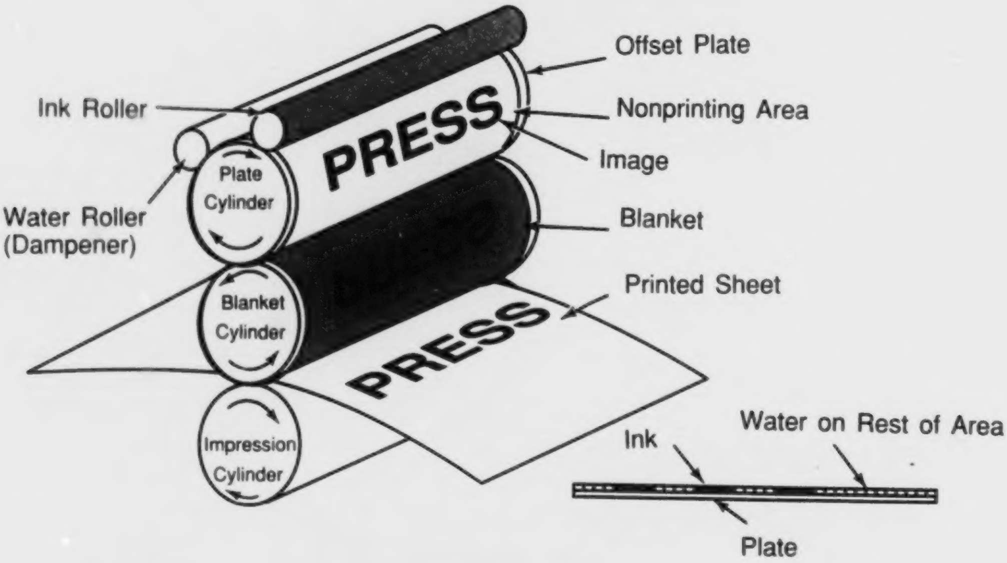
1. Of the three major printing processes, offset is the newest but the predominant method used today.

2. The image is first transferred from a plate to a blanket, then from the blanket to paper.

INFORMATION SHEET

3. Both ink and water (actually, a solution of water, gum arabic and other chemicals) are applied to the plate during the printing cycle.

4. Recognizable by a smooth print, as well as by the lack of any impression or ring of ink accompanying type which are characteristics of letterpress and gravure



III. Principal pre-press steps in offset printing

(NOTE: Although the following steps are representative of typical pre-press steps in offset printing, and are followed by many printers throughout the world, computerized systems are rapidly being adopted which bypass steps "A" through "F". In these cases "pages" or "print jobs" are created on-screen in a desktop publishing program. Graphic elements are placed (photos called up from a digital archival system into which photographs were scanned earlier), text is flowed into the proper places, headlines or other graphic elements are created from the keyboard and the finished image on the screen, or "file," is saved to computer disk or CD-ROM disk. That file is either transmitted by telephone (via modem), or the disk is physically transported to a computer located in the printshop. There, the file is opened and used to drive a platemaker program which creates an image on a printing plate from the computer program. The plate is then put on the press just as if it had been prepared with the steps included in this (Section III) part of the information sheet outline. One can imagine the reduction in labor costs, the reduced opportunities for error, and the reduced amount of physical space required in the pre-press area through the use of one of these systems.)

A. Original page (camera-ready copy) is created

B. Page "shot" on negative film with process camera

INFORMATION SHEET

C. Film developed

D. Negatives "opaqued" to eliminate undesired spots

E. Negatives stripped into flat (masking sheet or goldenrod)

F. Flat placed over plate and exposed to light

G. Plate developed and put on press

IV. **Basic offset printing process** (Transparency 1)

A. The image area of the plate surface is chemically treated to accept ink and reject water.

B. The non-image area of the plate surface is chemically treated to accept water and reject ink.

C. During the press operation, ink and water are both continually applied to the plate surface.

D. The image is right-reading on the surface of the offset plate.

E. The image is transferred (or offset) from the plate to the blanket.

F. The image on the blanket is a mirror image, or wrong-reading.

G. The blanket carries the image to the printing material.

H. The printing (or impression) takes place as the sheet of paper passes between the blanket cylinder and the impression cylinder.

I. The impression cylinder forces the paper against the blanket to cause the image to be printed on the sheet.

J. A clear, clean image is produced by maintaining the proper ink-water balance.

V. **Advantages, disadvantages, and uses of major printing processes**

A. Letterpress

1. Advantages

a. Capable of printing jobs of a variety of sizes in black and white and in color at high speeds

b. Most versatile method of printing; there is equipment for short, medium, and long runs.

INFORMATION SHEET

  c. For simple rush jobs, printing can be done directly from type.

  d. Quality is consistent throughout run.

  e. Dense ink gives a strong black image.

  f. No ink and water balance is required, so paper waste is often less than for offset (which may require several trial press runs).

  g. Almost any size of paper can be printed in single sheets.

  h. Accepts papers of any thickness, from the very thinnest to cardboard, depending on the type of press.

  i. Proofing is relatively inexpensive and available at any stage.

  j. Conversion of paper is easily done because of the press's capacity to press sharp cutting or scoring rules, numbering devices, and metal dies against paper.

2. Disadvantages

  a. Printed images often are less evenly inked and details somewhat less sharp than with offset.

  b. More expensive papers are required to achieve quality of offset.

  c. Pictures may cost more than with offset.

  d. Make-ready on presses is time consuming.

3. Uses

  a. Short-run printing from type and engravings

  b. Jobs requiring numbering (tickets, forms, etc.) and on-press die-cutting, perforating, embossing, etc.

  c. Publication work such as books, newspapers, magazines, (requiring long press runs), as well as many types of specialty printing and packaging

INFORMATION SHEET

B. Gravure

1. Advantages

    a. Capable of high-quality, high speed printing of black and white and color jobs

    b. Ideal process for reproducing highly faithful copies of photographs

    c. Most economical process for long runs (minimum of 100,000; ideally at least 300,000 or more).

    d. Quality is consistent throughout run.

    e. Capable of printing on a wide range of surfaces

    f. Able to lay down a dense layer of ink

    (NOTE: For ink density silk screen is gravure's only rival.)

    g. Produces the richest blacks and widest tonal range of all printing processes

    h. Plates are more expensive than either letterpress or offset, but they last longer.

2. Disadvantages

    a. High cost of plates and cylinders makes short runs uneconomical.

    b. Type is less sharp than if reproduced by offset or letterpress.

    c. Proofing is more cumbersome and expensive.

    d. Color correction and last minute corrections are difficult and expensive.

3. Uses

    a. Large-circulation magazines, high-quality newspaper magazines, and mail-order catalogs

    b. Luxurious large-format art and photo books

    c. Some kinds of packaging, wallpaper

INFORMATION SHEET

C. Offset

1. Advantages

    a. Capable of printing jobs of a variety of sizes in black and white and in color at a relatively low cost

    b. Although the quality is highest on smooth or coated papers, offset can print effectively on rough-surface papers as well.

    c. Lends itself to photographic preparation methods; can reproduce anything that can be photographed

    d. Able to use all kinds of composition methods, thus keeping typesetting cost to a minimum

    e. Cost-free reproduction of line illustrations and less costly reproduction of photographs of very fine detail are possible.

    f. Printing plates are relatively inexpensive and require only a short time to make as compared with letterpress and gravure plates.

    g. Plates, flats, and paste-ups are easily stored.

    h. Small duplicators are relatively easy to operate.

    i. Offers the designer great creative freedom.

2. Disadvantages

    a. Requires more attention than letterpress or gravure to maintain image consistency throughout run—the balance between ink and water requires skill

    b. Color variations occur due to problems with ink-water balance.

    c. Waste is usually higher than for other processes.

    d. Dense inking is difficult to achieve.

    e. Shop humidity and temperature control are more important since paper is exposed to a damp environment on the press.

INFORMATION SHEET

3. Uses

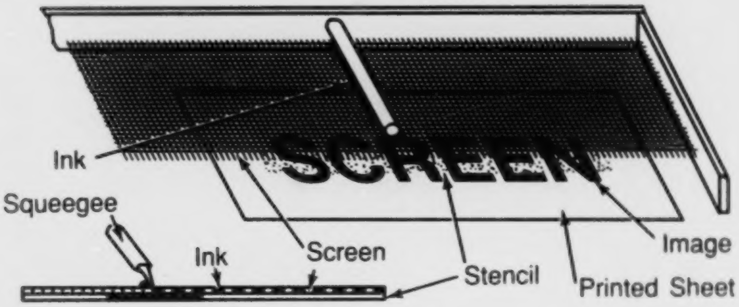
   a. Short runs (under 1,000) that involve type and illustrations such as resumes, letterheads, fliers, and newsletters

   b. Any moderate (5,000) to medium-long (100,000) runs requiring good photo reproduction such as magazines, newspapers, illustrated books and miscellaneous pieces such as office forms, brochures, and booklets

VI. Specialized printing processes

A. Screen printing—A printing method in which the image is transferred to the surface to be printed by means of ink squeezed by a squeegee through a stenciled fabric or metal wire screen stretched over a frame.

(NOTE: Screen printing can place a thick layer of ink on almost any material and is excellent for short runs like posters, lawn signs, billboards, bumper stickers and menu covers.)



B. Engraving—Process that reproduces images etched or inscribed into smooth metal

(NOTE: Engraving is used for invitations, announcements and letterheads, envelopes, greeting cards, stamps, money and stock certificates.)

C. Flexography—A relief printing method using wrap-around rubber or soft plastic plates and volatile, fast-drying ink

(NOTE: Flexography is widely used in the packaging industry for milk containers, cardboard boxes, gift wraps and shopping bags.)

D. Ink jet—Method of printing by spraying droplets of ink through computer-controlled nozzles

(NOTE: Ink-jet printing is used for direct mail, personalizing business forms and numbering tickets.)

E. Letterset (dry offset)—A printing method in which a low-relief plate is used on a modified offset press; as in conventional offset printing, the ink is transferred from the plate to the paper by being offset from a blanket, but unlike offset printing, no damping system is required.

(NOTE: Letterset is used in the packaging industry, to print against metal, aluminum or heavy paperboards.)

F. Thermography—A process that starts with copies printed by offset or letterpress with special nondrying inks, and the freshly printed sheets are dusted with resinous powder, then heated causing the powder to fuse and create a raised surface on the print.

(NOTE: Thermography is used for invitations, business cards, and letterheads.)

G. Copying—The fastest, most convenient and economical method of duplicating small numbers of copies (less than 100).

1. Electrostatic duplication (Xerography)—A copying process produced by electrostatic forces causing a powder (toner) to adhere to the charged image area of the copy
2. Spirit duplication—A copying process utilizing a paper spirit master with a carbon image transferring the image to paper when the master is moistened by vapors of duplicating fluid
3. Mimeograph duplication—A direct-plate copying process that employs a typed or handwritten stencil mounted on a cylinder filled with ink which flows through the holes (image area) onto the paper

VII. Finishing operations

A. Die-cutting—The process of cutting special shapes into printed sheets, sometimes by dies that look and perform much like a cookie cutter

B. Embossing—impressing an image in relief to achieve a raised surface, either over printing or on blank paper (called blind embossing)

C. Foil stamping—Applying a thin layer of colored foil to the printed material with a heated stamp or die

INFORMATION SHEET

D. Numbering—Printing consecutive numbers on invoices, tickets, etc. with a numbering machine

(NOTE: Numbering is usually done by letterpress, although some offset presses have numbering attachments. Embossing and foil stamping are the domain of the letterpress, which impacts the paper with type. This direct contact is used with proper press accessories to emboss or stamp hot foil surfaces on the paper.)

E. Perforating—Punching a line of minute holes in a sheet so that a part may be easily torn away

(NOTE: In letterpress, perforating is done on press; in offset or gravure, it is usually done off press.)

F. Scoring—Creasing paper so it will fold more easily

(NOTE: Scoring is usually done in the folder.)

VIII. Types of material on which printing is done

A. Paper

B. Wood

C. Glass

D. Cloth

E. Metal

F. Rubber

G. Plastic

H. Leather

IX. Methods of feeding paper into the press

A. Sheet feeding

1. The "feeder" section of the press picks up the sheets, usually with a combination of metal fingers and vacuum suckers, and feeds them through to be printed.

2. The sheets are delivered from the press as flat sheets.

INFORMATION SHEET

B. Web feeding

1. Front end of press has a rollstand, which holds the roll of paper as it is unwound and fed through the press; printing can take place at much higher speeds because the machine is not slowed down by having to pick up and put down each sheet.
2. Most web pressed incorporate some form of finishing process such as cutting and folding.

PRINTING PROCESSES
UNIT IV

ASSIGNMENT SHEET #1—IDENTIFY PRINTING PROCESSES USED TO REPRODUCE DIFFERENT PRINTED PIECES

Name ______________________________ Score __________

Evaluation criteria	**Rating**
• Student followed directions	_____
• Provided appropriate samples of: Letterpress, Gravure, Offset and specialized processes	_____
• Scrapbook is neat and legible	_____

Directions: Make a scrapbook of printed pieces to illustrate the various kinds of printing processes. For instance, include samples of offset, letterpress, gravure, and as many of the specialized processes as you can find. Explain how you identified each sample.

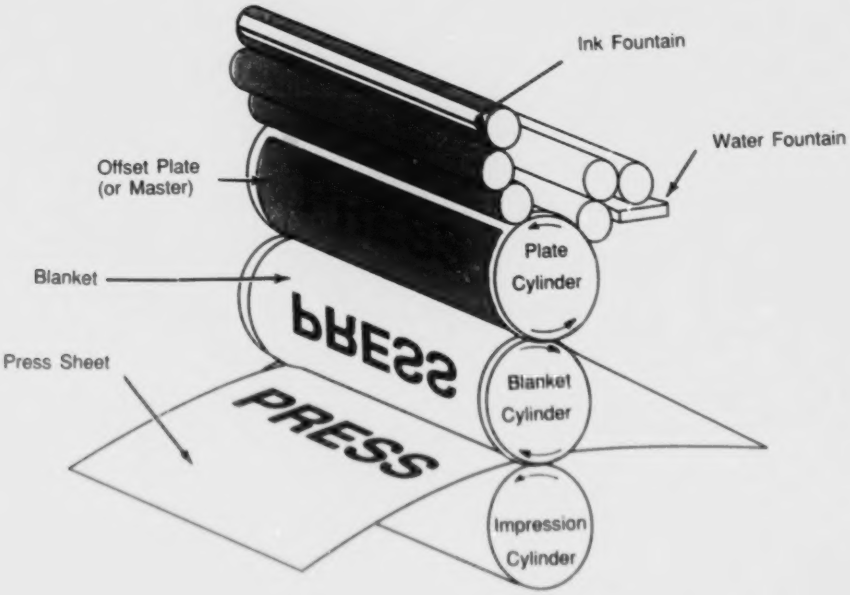
PRINTING PROCESSES
UNIT IV

ASSIGNMENT SHEET 2—DESCRIBE THE OFFSET PRINTING PROCESS

Name ______________________________ Score __________

Evaluation criteria	Rating
• Student followed directions	_____
• Student correctly identified parts and described their functions	_____

Directions: In the blanks below, describe the functions of each component in the offset process as depicted in the following illustration.



1. Ink fountain ______________________________
2. Water fountain ______________________________
3. Plate cylinder ______________________________
4. Blanket cylinder ______________________________
5. Impression cylinder ______________________________

ASSIGNMENT SHEET 2

6. Offset plate ____

7. Blanket ____

8. Press sheet ____

PRINTING PROCESSES
UNIT IV

JOB SHEET #1—TEST THE INK-WATER PRINCIPLE ON AN OFFSET PLATE

Name ______________________ Attempt Number _____

Date ______________________ Overall Rating _____

Evaluation criteria	**Rating**
• Student checked out proper tools and materials	_____
• Placed plate on table with image up	_____
• Wiped plate clean with wet cotton	_____
• Applied ink to cotton and rubbed plate thoroughly	_____
• Recorded what happened to image area of plate and non-image area	_____
• Cleaned and gummed plate	_____
• Returned plate to instructor, checked in tools, cleaned work area	_____
• Performed steps in safe, timely manner	_____
• Provided satisfactory responses to questions asked	_____

Introduction: The chemical basis for offset printing is the fact that "oil and water do not mix." In this job sheet you will receive first-hand experience of how oily ink and water separate on a sensitized plate to provide an inked image area and "watered" background.

Directions: When you are ready to complete this task, obtain the following tools and materials from your instructor and proceed as directed.

A. Tools and materials

1. Developed offset plate
2. Two cotton pads
3. Thimble-size portion of black ink
4. Clean work table

JOB SHEET #1

5. Water bottle
6. Clean-up solvents
7. Preservatives

B. Procedure

1. Lay plate on table with image up.
2. Wet cotton pad and wipe plate clean.
3. Apply small quantity of ink to wet cotton pad.
4. Rub plate thoroughly with the inked, wet cotton pad.
5. Write down on a sheet of paper what happened to the image area of the plate.
6. Write down what happened to the non-image area of the plate.
7. Turn sheet in to instructor.
8. Clean and gum plate.
9. Return plate to instructor.
10. Put away tools and materials.
11. Clean up work area.

PAPER
UNIT V

UNIT OBJECTIVE

After completion of this unit, the student should be able to select appropriate kinds of paper for various print jobs. Competencies will be demonstrated by completing the assignment sheets and the unit test with a minimum score of 85 percent.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms related to paper with the correct definitions.
2. Match the basic paper grades with their uses.
3. Match the basic paper sizes with their dimensions.
4. Name factors affecting paper choice.
5. Describe tests and procedures for determining grain direction.
6. Select true statements concerning printing process requirements.
7. List information to specify when ordering paper.
8. Match commercial envelope number sizes with their dimensions.
9. List rules for handling paper.
10. Identify basic grades of paper. (Assignment Sheet #1)
11. Choose the correct paper for various jobs. (Assignment Sheet #2)

PAPER
UNIT V

INFORMATION SHEET

I. **Terms and definitions**

A. Basic size—The size adopted over time as standard for each type or grade of paper

B. Basis weight—The weight in pounds of 500 sheets of paper cut to a given standard size for that grade (Transparency 1)

(NOTE: Basis weight may also be known as "substance".)

EXAMPLE: For book grades, paper stock is "70 pound" if 500 sheets 25 by 38 inches weigh 70 pounds.

C. Brightness—Characteristic of paper referring to how much light it reflects

D. Bulk—Thickness of paper, expressed in sheets per inch

E. Calendaring—A rolling operation during papermaking that creates the amount of smoothness in paper

F. Caliper—Thickness of a sheet of paper, usually measured in thousandths of an inch (Transparency 2)

G. Color—Pigment or shade of paper

(NOTE: Paper is available in virtually every color and also in a wide range of whites.)

H. Felt side—The smoother side of the paper that was on the felt blanket of the papermaking machine

I. Fiber—Wood pulp reduced to wood or cellulose fibers, the basic ingredient of paper

J. Finish—Surface characteristic of paper that affects look, feel, and printability

K. Grain—The direction the fiber runs in paper

(NOTE: Knowing the grain of paper is important for printing, folding, and binding.)

INFORMATION SHEET

L. Opacity (show-through)—The property of paper that helps prevent printing on one side from showing on the other

(NOTE: The more opaque the paper, the less show-through will occur.)

M. Printability—The ability of a paper to take print adequately without problems

N. Ream—500 sheets of paper

(NOTE: Most business papers are packaged in reams.)

O. Runability—Properties that affect the ability of the paper to run on the press such as tensile strength, stretchability, defects, moisture content, etc.

P. Watermark—Distinctive design created in paper during manufacture

Q. Wire side—The side of paper next to the screen on the papermaking machine

R. Recycled—Paper produced from collected waste paper

(NOTE: Recycled paper comes in all grades and colors, and may have greater flexibility and greater opacity than non-recycled papers.)

II. Uses of basic paper grades

A. Writing—Used for letterheads, business forms, certificates, checks, fliers, resumes, photocopies

1. Bond
2. Ledger
3. Safety
4. Business

B. Book—Used for books, booklets, brochures, magazines, newsletters, fliers, posters, programs, announcements

1. Uncoated
2. Text

INFORMATION SHEET

3. Coated

   (NOTE: Coated papers may come in matte, gloss, dull, and cast coated.)

4. Offset

C. Cover—Used for covers on booklets, business cards, menus, folders, table tents, tickets, invitations, business reply cards

D. Card stock—Used for file folders, covers, post cards, tags, signs, point of purchase displays

   1. Bristol
   2. Index
   3. Tag
   4. Blanks

E. Newsprint—Used for newspapers, fliers, circulars

F. Specialty papers—Used for directories, direct mail pieces, fly leaves, forms, bags, labels, stickers, banners, maps

   1. Lightweight

      EXAMPLES: Manifold, onionskin, Bible

   2. Translucents
   3. Carbonless

      (NOTE: Carbonless paper is also known as "NCR" or "No Carbon Required".)

   4. Kraft
   5. Gummed
   6. Pressure-sensitive
   7. Label
   8. Synthetic

INFORMATION SHEET

III. Dimensions of basic paper sizes

A. Bond—17" by 22"

B. Book—25" by 38"

C. Cover—20" by 26"

D. Bristol—22 ½" by 28 ½"

E. Index—22 ½" by 35" and 25 ½" by 30 ½"

F. Tag—24" by 36"

G. Newsprint—24" by 36"

IV. Factors affecting paper choice

A. Grain

B. Weight

C. Size

D. Bulk

E. Opacity

F. Color

G. Finish

H. Price

(NOTE: Paper represents a major production cost.)

I. Availability

J. Reproduction quality

K. Durability

L. Chemical and physical properties that affect presswork, folding, and binding

M. Production equipment to be used

N. Suitability for scoring, embossing, die-cutting

INFORMATION SHEET

O. Psychological factors

EXAMPLE: Environmental groups prefer recycled paper.

P. Postal Service guidelines

Q. Mailing costs

V. Tests and procedures for determining grain direction (Transparency 3)

A. Bending—Hold a sheet first at one edge, then the other; the side producing the greatest sag is the direction of the grain.

B. Tearing—Tear a sheet from the end and from the side; the cleanest tear is with the grain direction.

C. Folding—Fold and crease paper sharply in both directions; the smoothest crease is with the grain.

D. Wetting—Wet sheet; paper rolls with the direction of grain.

VI. Printing process requirements

A. Letterpress papers should be smooth (so that uneven impression is prevented) and free from lint and dust.

B. Gravure papers should be extremely smooth and have a certain amount of absorbency.

C. Offset papers require moisture resistance; they should have good surface strength and be lint-free.

D. Screen printing papers require resistance to change in dimensions under heat drying conditions.

VII. Information to specify when ordering paper

A. Quantity

(NOTE: Paper can be bought in sheet or roll form.)

B. Size

C. Grain direction

(NOTE: When ordering paper, underline dimension to indicate grain, direction, i.e. 5,000 sheets, 23 x 35, 80# etc.)

D. Weight

INFORMATION SHEET

E. Color

F. Brand name

G. Texture or finish

H. Grade

(NOTE: Additional information might include C1S and C2S for "coated one side" and "coated two sides"; Duplex or Duo for paper with different color or finish on each side; gummed; pressure-sensitive; NCR, etc.)

EXAMPLES: 5,000 sheets, 23 x 35, 80# sand Wausau Astro Parche text
2,000 sheets (4 reams), 8 ½ x 11, 24# Beckett Cambric Gray writing
600 sheets, 25 x 38, 8 pt., WarrenFlo cover
1,500 sheets, 20 x 26, 60# white High Gloss Fasson Crack'n Peel label
1,920 lbs. (6 rolls), 11 inch, 60#, white wove Hammermill offset opaque

VIII. Commercial envelope number sizes and dimensions (Transparency 4)

A. 6 ¼ size—Dimensions 3 ½" x 6"

B. 6 ¾ size—Dimensions 3 ⅝" x 6 ½"

C. 7 size—Dimensions 3 ¾" x 6 ¾"

D. 7 ¾ size Dimensions 3 ⅞" x 7 ½"

E. Monarch size—Dimensions 3 ⅞" x 7 ½"

F. Check size—Dimensions 3 ⅝" x 8 ⅝"

G. 9 size—Dimensions 3 ⅞" x 8 ⅞"

H. 10 size-Dimensions 4 ⅛" x 9 ½"

I. 11 size—Dimensions 4 ½" x 10 ⅜"

J. 12 size—Dimensions 4 ¾" x 11"

K. 14 size—Dimensions 5" x 11 ½"

(NOTE: The two most common envelope sizes are #6 ¾ business envelopes and #10 business envelopes.)

INFORMATION SHEET

IX. Rules for handling paper

A. Keep paper flat.

B. Never drop paper cartons.

C. **Do not** store paper indirect sunlight.

D. Stack paper on pallets instead of on concrete floors.

E. Reseal opened reams and cartons.

F. Allow incoming paper to adjust to temperature and humidity conditions in the plant.

G. Keep all stock marked; **do not** destroy paper package labels.

H. Use oldest stock first.

I. Use proper equipment to lift papers.

PAPER
UNIT V

ASSIGNMENT SHEET #1—IDENTIFY BASIC GRADES OF PAPER

Name ______________________________________ Score ____________

Evaluation criteria	Rating
• Student followed directions	_____
• Scrapbook includes examples of six grades of paper	_____
• Student participated in examinations of paper	_____
• Student demonstrated satisfactory performance to instructor	_____

Directions: Obtain (from your instructor, a printer, or paper wholesaler) examples of each grade of paper. (Refer to Section II of the Information Sheet.)

1. Make a scrapbook with samples of each grade. Label the samples. Learn to recognize each grade by sight and touch.

2. Examine some of your samples. Using a magnifying glass, determine the felt side and the wire side of the sheets.

3. Fold a few of your sheets of paper with and against the grain. Note the differences, if any.

PAPER
UNIT V

ASSIGNMENT SHEET #2—CHOOSE THE CORRECT PAPER FOR VARIOUS JOBS

Name ______________________________ Score __________

Evaluation criteria	**Rating**
• Student followed directions	_____
• Student's selections were appropriate for uses specified	_____

Directions: Examine an assortment of paper. Select a paper stock that would be most suitable for the following:

1. Letterhead for your school
2. A business card for a lawyer
3. An invitation to a reception in honor of a mayoral candidate
4. A direct mail piece for a new pizza restaurant
5. A circular for a grocery store
6. A sales brochure for a new apartment complex
7. A newsletter for a hospital

TYPOGRAPHY
UNIT VI

UNIT OBJECTIVE

After completion of this unit, the student should be able to measure type and identify parts of a type character, races of type and formats of type composition. Competencies will be demonstrated by completing the assignment sheets and the unit test with a minimum score of 85 percent.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms related to typography with the correct definitions.
2. Identify parts of a type character.
3. Identify races of type.
4. Complete statements concerning type families.
5. Complete statements concerning the measurement of type.
6. Identify formats of type composition.
7. Identify type races in printed material. (Assignment Sheet #1)
8. Measure type. (Assignment Sheet #2)
9. Identify formats of type composition. (Assignment Sheet #3)

TYPOGRAPHY
UNIT VI

INFORMATION SHEET

I. **Terms and definitions**

A. Ascender—The part of a lowercase letter that rises above the x-height, as in b, d, f, h, k, l, and t

B. Body type—Type 12 points and smaller

(NOTE: This is also referred to as *text type*.)

C. Characters—Individual letters, numerals, punctuation marks or other symbols

D. Descender—The part of a lowercase letter that goes below the x-height, as in g, j, p, q, and y

E. Dingbat—A typographic decorative device such as a bullet or star

F. Display type—Type 14 points or larger

G. Family—All the type styles of a particular typeface

EXAMPLES: Normal, *italic*, and **bold**

H. Font—All the characters of a particular typeface

I. Kerning—Adjusting the letterspacing between certain letters to make them appear better fitted together

(NOTE: Kerning is often called *set with minus letterspacing*.)

J. Leading—The space between lines of type

(NOTE: Leading is pronounced "ledding.")

K. Letterspacing—Amount of space between letters

L. Line gauge—Printer's ruler that is calibrated in picas, points, and inches

M. Lowercase—Small letters of the alphabet

(NOTE: *Uppercase* and *Lowercase* are terms derived from the days of hand-set lead type when a printer kept type in a specially divided wooden box ("California job case") with specific compartments for each letter of the alphabet. The upper portion of the case contained the capital letters and the lower portion—the one much easier to reach for most text type—contained the smaller, or "lowercase" letters.)

INFORMATION SHEET

N. Measure—The width of a line of type

O. Pica—Unit of measurement equaling approximately $^{1}/_{6}$ of an inch or 12 points

P. Point—Unit of measurement equaling approximately $^{1}/_{72}$ of an inch or $^{1}/_{12}$ of a pica; used to express type size or leading

Q. River—Distracting pattern of white space running vertically down through body copy

R. Serifs—Short cross-strokes that project out at the end of the main letter strokes in some typefaces

S. Small caps—Capital letters that are the same size as the x-height of the typeface

EXAMPLE: Small Caps

T. Straight matter—Body type set in normal paragraph form in contrast to tabular matter

U. Tabular matter—Charts, tables, formulas, or other elements that make typesetting complicated and time consuming

V. Type—Characters used singly or collectively to create words, sentences, paragraph, blocks of copy, etc.

W. Typeface—A particular style or design of type

X. Type size—The height of a typeface measured from the bottom of its descenders to the top of its ascenders

Y. Typography—The art and science of working with type

Z. Uppercase—Capital letters of the alphabet

AA. Widow—End of a paragraph or column that is undesirably short

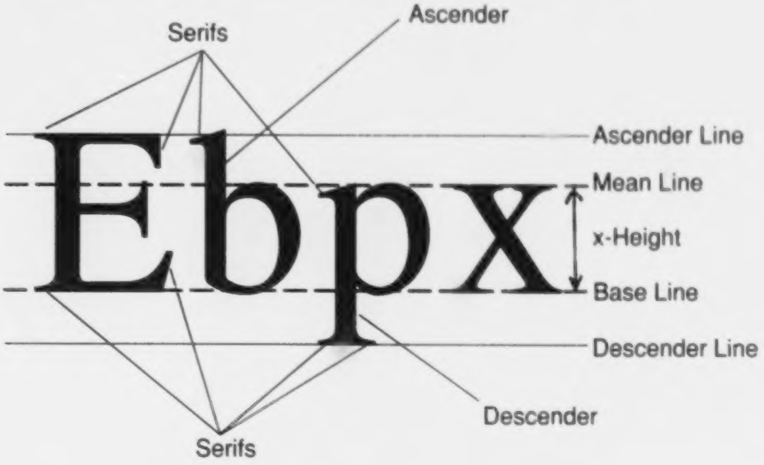
BB. Wordspacing—Amount of space between words

CC. x-height—The distance between the base line and mean line of type; the height of a lowercase letter excluding the ascenders or descenders

INFORMATION SHEET

II. **Parts of a type character** (Transparency 1)

A. Different parts of a type character have certain names



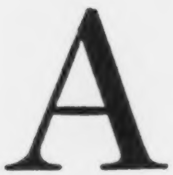
B. Most important parts are ascender, descender, and serif

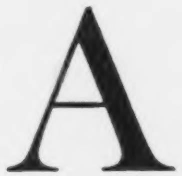
1. Ascenders and descenders help determine body size
2. Serifs help identify typefaces

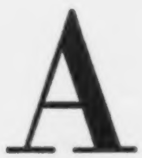
III. **Type races** (Transparency 2)

A. Roman

1. Variations include old style, modern, and transitional
2. All have serifs
3. All have both thick and thin strokes
4. Also called "serif"
5. Suitable for almost any application


Old Style Roman


Transitional Roman


Modern Roman

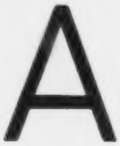
INFORMATION SHEET

B. Sans serif

1. Also known as Gothic or grotesque

   (NOTE: The French word *sans* means *without*; thus the term sans serif means without serifs.)

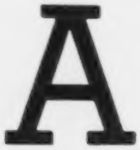
2. All strokes are nearly uniform
3. Simplest of all typeface designs
4. Popular for publication headings, posters and advertising designs



Sans Serif

C. Square serif

1. Has blocked or squared serifs
2. Consists of uniform strokes
3. Sometimes called "block" style or "slab serif"
4. Popular in advertising



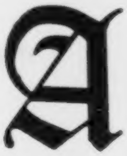
Square Serif

D. Text

1. Has a heavy, bold appearance
2. Styled after ornate hand lettering used more than 500 years ago
3. Also called Old English or black letter
4. Should not be set in all capital letters, as it is very difficult to read

INFORMATION SHEET

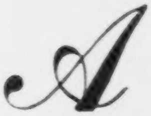
5. Used for newspaper nameplates, announcements, certificates



Text

E. Script

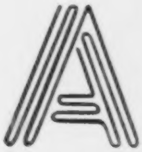
1. Has handwritten or hand-lettered effect
2. Popular for announcements and invitations
3. Also known as "cursive"
4. Should not be set in all capital letters, as it is very difficult to read



Script

F. Novelty

1. Consists of unusual designs that command attention
2. Used for display lines only, as it generally is not legible in small sizes
3. Creates a sense of mood, time, or decorative effect
4. Also called "decorative" or "specialty"



Novelty

IV. Type families

A. Each type race consists of subgroups, called families.

EXAMPLE: The sans serif group includes such families as Helvetica, Futura, Avant Garde.

INFORMATION SHEET

B. Type is ordered by family name.

C. Families may have a number of variations involving weight, width, and posture.

(NOTE: A few typefaces offer such variations as shaded, shadowed and outlined, but these are not usually thought of as family variations; instead, they may be classified as novelty.)

1. Weight variations refer to type styles designed with thinner or thicker strokes, such as light, demibold, bold and extrabold.

   (NOTE: Boldface is the most common weight variation.)

2. Width variations refer to the condensing (narrowing) and extending (widening) of the letters.

3. Posture refers to upright and italic.

   (NOTE: Typefaces that are slanted to their right are referred to as *italic* in contrast to normal, upright posture. Trade practice dictates that upright is assumed unless typesetting specifications state otherwise.)

Futura Lt	ABCDEFGHIJKLMNOPQRSTUV
Futura Lt Ital	*ABCDEFGHIJKLMNOPQRST*
Futura Bld	**ABCDEFGHIJKLMNOP**
Futura Bld Cond	**ABCDEFGHJKLMNOPQRSTUVW**
Futura Bld Ital	***ABCDEFGHJKLMN***
Futura Exbld Cond	**ABCDEFGHIJKLMNOP**
Futura Exbld Cond Ital	***ABCDEFGHJKLMN***
Futura Exbld Ital	***ABCDEFGHIJ***

V. **Measuring type** (Transparencies 3 and 4)

A. Units of measurement

1. Point

   a. Smallest unit of measurement

   b. Used to measure type body size and leading

   c. Approximately 1/72 of an inch

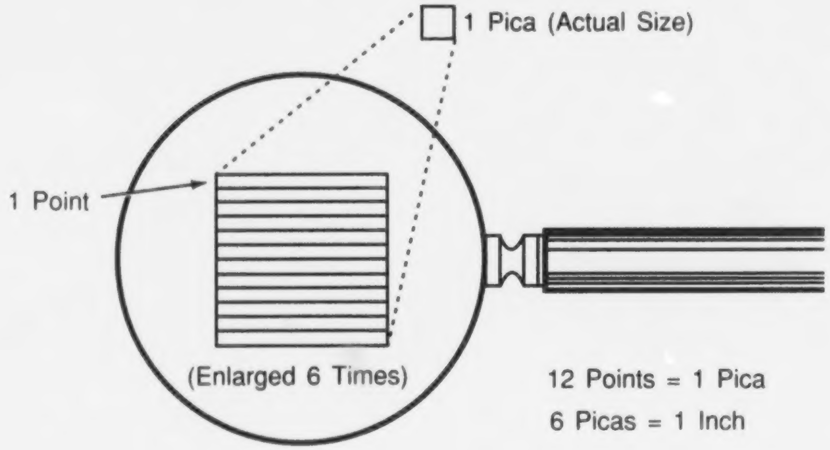
2. Pica

   a. Equal to exactly 12 points

   b. Used to measure line length, depth of columns, size of margins, size of illustrations

INFORMATION SHEET

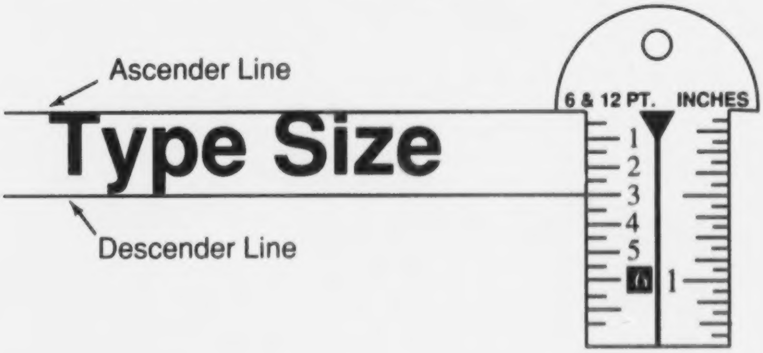
c. Six picas equal approximately one inch



B. Type size

1. Refers to height of the particular type
2. Measured in points, with a line gauge
3. Measured from the bottom of descenders to the top of ascenders

   (NOTE: Type 12 points or smaller is known as *body* or *text* type, while type 14 points or larger is known as *display* type. The most widely used sizes range from 6 points to 72 points.)



C. Line length

1. Also known as *measure* or *column width*
2. Measured in picas, with a line gauge

INFORMATION SHEET

3. For body copy, should be approximately 1 ½ time the type size being used

   (NOTE: This allows for optimum readability.)

   EXAMPLE: 10 point type should be set 15 picas wide.

D. Line depth

1. Measured from base line to base line

2. Measured in points, with a line gauge

E. Leading

(NOTE: "Leading" is a term left over from the time when letterpress type was cast from molten lead. Therefore, to "lead" a line, was to add material between lines of type, giving them more space for easier readability. Today, the term is still used, although rarely is any type cast from hot lead.)

1. Space between lines of type; measured from descender line to ascender line

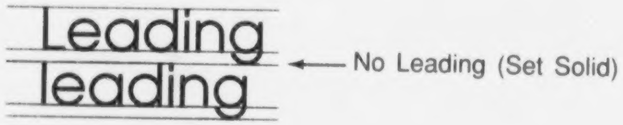
   (NOTE: Leading equals line depth minus type size.)

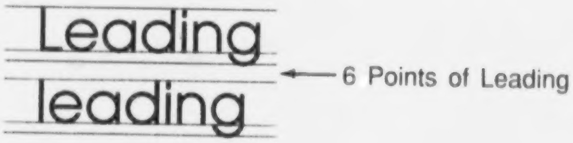
2. Affects appearance and readability of copy

3. Measured in points, with a line gauge

4. Leading of 0 to 2 points for body type is common practice in the industry

   (NOTE: *Set solid* means set without leading, i.e., 12 point type set with 12 point line depth. Modern typesetting equipment can set one line of type on top of another, called *negative leading*, but it is seldom appropriate.)





INFORMATION SHEET

F. Horizontal spacing

1. Wordspacing — Amount of spacing between words

   (NOTE: This is now done automatically by the typesetting equipment.)

2. Letterspacing — Amount of spacing between letters of a word

   LETTERSPACING
   Minus 1.5 points

   LETTERSPACING
   Normal

   LETTERSPACING
   2 points

   LETTERSPACING
   4 points

   LETTERSPACING
   6 points

3. Indentation — White space set in a fixed interval from the margin to separate paragraphs

   a. The most common indentation is 1 em

      (NOTE: An em is a square of the type size being set; for example, a 10-point em is 10 points wide and 10 points high.)

   b. When paragraph indentations are not used at all, extra line space is left between paragraphs

      (NOTE: These are referred to as *block paragraphs*.)

   c. Hanging indents are paragraphs in which the first line is set flush left and subsequent lines are indented, usually 2 or 3 ems

   d. Initial letter indentation is done to accommodate an oversized character that begins the first word of a body of copy for decoration or emphasis

      Initial letter indentation allows space to accommodate an oversized character at the beginning of a body of copy to emphasize or provide a decorative effect.

INFORMATION SHEET

VI. Formats of type composition

(NOTE: Formats are ways of arranging lines of type.)

A. Centered

1. Aligned at the mid-line
2. Spaced equal distance from both ends of each line
3. Used mostly for display type or body type in advertisements

LAMPS
for photographic equipment
send for our complete list of all ANSI
coded lamps manufactured in the U. S. for
audio/visual, photo, & studio use
FAST SERVICE — LIBERAL DISCOUNTING
NAPSCO
NATIONWIDE PHOTOLAMP SUPPLY CO.

B. Flush left

1. Also known as *ragged right* or *quad left*
2. All lines are aligned on the left end and are ragged on right end

And, whether you choose condenser illumination,
diffusion or a powerful dichroic color head,
you'll find that the illumination is incredibly even,
corner-to-corner. The reason's the same: extra care in

C. Flush right

1. Also known as *ragged left* or *quad right*
2. All lines are aligned at right end
3. Lines begin randomly on left end

When you need lots of light for lots of
depth of field, Broncolor's got it. The in-
credibly efficient Broncolor 606 gets a
guide number for 945 out of 6,000 watt
seconds, for an aperture of f/157 at 6
feet with ASA 100 film (f/120 + ½ stop),
with 55° standard reflector. The compa-
rable figure for the 1500 watt second
Broncolor 404 is a healthy f/79!

INFORMATION SHEET

D. Justified

1. All lines are even, or flush, at both ends
2. Indentation may, or may not, be used for first line of paragraph

> The third area of potential stress touched on in these articles revolves around the delegation of tasks, as discussed by Donald Haws. Although few managers doubt the logic of the "anti-instinctive" aspects of the managerial role, the difficulty arises when the necessity occurs to *do* it. It is then that the dual components of any delegated task become evident: a) the *responsibility* of the

E. Runaround

1. Lines are shortened where needed to go around an illustration or photo
2. May be part of another format

> Within this framework, we consider the question confronting the moving image producer at the start of the decade of the Eighties, to wit: "Shall we use film or video?"

> A decade ago, the answer was more or less clear-cut. Video was the province of broadcasters and amateurs. Film was the only medium for the information producer who wanted to work in the real world, rather than in the "artificial" confines of a studio, who wanted maximum flexibility and creative control in shooting and editing, and who would settle for nothing less than a first quality finished product at a cost effective price.

3. May be contoured to fit around an irregularly shaped illustration (contoured wrap)

F. Molded

1. Body type formed into a distinctive shape

   EXAMPLE: Word search puzzles are often printed in shapes.

2. Can be distracting and hard to read

G. Tabular .

1. Also known as *multiple justification*

INFORMATION SHEET

2. Figures or letters are set in columns across the page

	Percent Reporting Expenditure	**Avarage Expenditure**	**Total Expenditure**
Purchased Equipment, Materials or Services	96.3%	$30,728	$1,250,470,600
Equipment			
Purchasing	84.0	12,460	442,320,500
Rental	91.1	1,435	11,583,100

H. Ruled form

1. Cross-ruled part of form may be done separately

2. May be part of another format

FOLD PLATE	W S	
	DEPTH	WIDTH
A	12¾"	14"
B	10	14
C	8½	10
D	8½	10
E	8½	10
F	8½	10

TYPOGRAPHY
UNIT VI

ASSIGNMENT SHEET #1—IDENTIFY TYPE RACES IN PRINTED MATERIAL

Name ______________________________ Score ____________

Evaluation criteria	**Rating**
• Student followed directions	_____
• Collection includes examples of the six type races	_____
• Collection is neat, orderly, and complete	_____

A good way to become familiar with typefaces is to identify examples in magazines, newspapers and other publications.

Directions: Collect as many examples of the six different type races listed below as possible. Paste these on separate sheets and label with the appropriate names.

A. Roman

B. Sans serif

C. Square serif

D. Text

E. Script

F. Novelty

TYPOGRAPHY
UNIT VI

ASSIGNMENT SHEET #2—MEASURE TYPE

Name ______________________________ Score ______________

Evaluation criteria	**Rating**
• Student followed directions	_____
• Student accurately measured line width, type size and leading and line depth	_____

Directions: Using a line gauge, measure the type copy shown below and write the appropriate answer for each.

Line Length

1.	_____ picas wide	Measuring and fitting type are not diffi- cult processes, but they require know-
2.	_____ picas wide	Measuring and fitting type are not difficult pro- cesses, but they require knowledge of the mean-
3.	_____ picas wide	Measuring and fitting type are not difficult processes, but they require knowledge of the meaning of various terms

Type Size

4.	_____ points	Calculations. As a result, your prediction of
5.	_____ points	The Typewritten Copy
6.	_____ points	Typewritten Copy

Leading and Line Depth

7. _____ point body type size

8. _____ point line depth

9. _____ point leading

Measuring and fitting type are not difficult processes, but they require knowledge of the meaning of such terms as point, pica, measure, leading, and justify, and some mathematical

TYPOGRAPHY
UNIT VI

ASSIGNMENT SHEET #3—IDENTIFY FORMATS OF TYPE COMPOSITION

Name ______________________________ Score ______________

Evaluation criteria	Rating
• Student followed directions	_____
• Student located and correctly labeled examples of each of the eight formats of type composition	_____

Directions: Collect samples of different formats of type composition. They may be cut out of magazines or newspapers or photocopied from books. Paste these on plain white paper and label as to format. Find at least one of each of the following:

A. Centered

B. Flush left

C. Flush right

D. Justified

E. Runaround

F. Molded

G. Tabular

H. Ruled form

TYPESETTING
UNIT VII

UNIT OBJECTIVE

After completion of this unit, the student should be able to distinguish between various composition methods, calculate copyfitting, mark up copy and set type. Competencies will be demonstrated by completing the assignment sheets, job sheets, and the unit tests with a minimum score of 85 percent.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms related to typesetting with their correct definitions.
2. List composition methods.
3. Match composition methods with the correct advantages or disadvantages.
4. Select true statements concerning the typesetting process.
5. Select true statements concerning copyfitting.
6. Select true statements concerning marking copy.
7. Calculate copyfitting. (Assignment Sheet #1)
8. Mark up copy. (Assignment Sheet #2)
9. Set type using a phototypesetting machine. (Job Sheet #1)
10. Set type using a microcomputer. (Job Sheet #2)

TYPESETTING
UNIT VII

INFORMATION SHEET

I. **Terms and definitions**

A. Character count—Number of characters in a pica, inch or line; it is different for each typeface and size and varies with extending or condensing

B. Cold type—Type produced by means other than hot metal

C. Compose (typeset)—To set type by any method

D. Composition—Type that has been set

E. Compositor (typesetter)—The individual who sets type

F. Copy (manuscript)—Any written material needing to be typeset

G. Copyfit—To calculate how much space a given amount of copy will occupy when set in a specified size and typeface

H. Cursor—Indicator that locates on the VDT screen where the next action will take place

I. Digital type—Characters, such as from a laser printer or phototypesetter, made up of thousands of lines or dots positioned by a computer

J. Floppy disk—A small, flexible plastic disk used to store data magnetically

K. Format—Specifications that the typesetter translates into computer-specific codes to perform rapid setup of type size, style, line width, leading, indents or a combination of these functions

L. Hard copy—Copy on paper as opposed to the "soft" copy in electronic memory

M. Hot type—Type composed by machine from molten metal; sometimes includes handset type

N. H&J—Hyphenation and justification

O. In-house composition—Typesetting done in the offices of organizations requiring printed materials

P. Keyboard—Primary computer input device including character keys, numeric keys, direction keys and other special keys for typographic commands

INFORMATION SHEET

Q. Laser—Acronym for Light Amplification by Stimulated Emission of Radiation

R. Laser printing—A type of electrostatic printing in which the image is created by modulating a laser on and off according to digital information from a computer

S. Mark up—To indicate on layout or copy instructions for typesetting

T. Modem—Device to connect one computer to another via telephone lines

U. Mouse—Small device used to move the cursor on a computer screen

V. OCR (optical character recognition)—A scanner that reads typed manuscripts and produces a magnetic or perforated tape or electronic signals from which type can be set

W. Pagination—Electronic generation of text and graphics that allows layout and design of multiple pages of a publication to be done on a VDT

X. Specifications—Instructions about the typeface, size, style, leading, measure, arrangement, etc.

Y. Type house—A business that sets type

Z. Type specimen book—Book showing examples of all typefaces available from a type shop

AA. VDT (video display terminal, sometimes known as a CRT because it uses a cathode ray tube)—A cathode-ray tube keyboard-operated device for displaying copy, making corrections, combining copy elements and performing other typesetting functions

BB. WYSIWYG—Abbreviation for "What You See is What You Get"

II. Composition methods

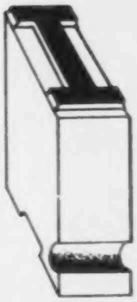
A. Hot type—Traditional method of composition; can be printed directly onto surface of paper

(NOTE: Hot type refers to cast metal type whether set by hand or machine.)

INFORMATION SHEET

1. Hand-set or foundry composition

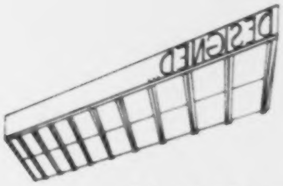
   (NOTE: Individual metal or wood characters are assembled into lines similar to those Gutenberg invented about 1450.)



Hand-Set Character

2. Machine-set (Can be produced on any of four machines: Linotype, Intertype, Monotype, Ludlow type)

   (NOTE: When introduced about 100 years ago, line-casting machines revolutionized the printing industry.)



Linotype/Intertype Slug

B. Cold type — Main method of composition today; any copy that can be photographed

1. Hand lettering
2. Transfer type and press-on lettering
3. Strike-on composition

   (NOTE: Several machines can be used, including typewriters and computer daisywheel or dot matrix printers.)

INFORMATION SHEET

4. Photographic typesetting (Transparency 1)

   (NOTE: Phototypesetting is a photographic process; letter images are recorded on light sensitive paper or film that is then developed and printed. Depending on the machine, each letter is set by hand [photolettering] or set automatically using a keyboard [photocomposition]. Computers drive photocomposition systems today.)

5. Digitized typesetting (Transparency 2)

   (NOTE: A computer-driven, digital typesetter stores type fonts and symbols as digitized information, i.e. magnetic signals generating letters made up of thousands of tiny, overlapping lines, with output etched by a high-resolution laser that creates type. Machines can create type on photographic paper or plain paper.)

6. Microcomputer composition

   (NOTE: The introduction of "desktop publishing" in 1984 put the power of professional-quality typesetting and page production in the hands of personal computer users. The copy you are reading was set on a personal computer and originally printed with a laser printer.)

III. Advantages and disadvantages of composition methods

(NOTE: Factors to consider when selecting a composition method are quality, speed, and cost.)

A. Hand-set or foundry composition—Slow and time-consuming; no longer widely used

B. Machine set—By today's standards, slow; offers limited choices of type styles and sizes, but still used for short letterpress jobs by a few printers and for premium typesetting jobs by a few type shops

C. Hand lettering—Used primarily in custom design work

D. Transfer type—Slow but popular method of preparing small amounts of distinctive display type; offers the greatest range of typefaces for the least money.

   (NOTE: In addition to letters and numbers, sheets with borders, rules, symbols, ornaments, drawings, screens, etc., are also available.)

E. Strike-on composition—Low cost and adequate quality, but limited to text sizes only in small range of type styles

INFORMATION SHEET

F. Photographic typesetting — Major advantages of photocomposition are excellent image quality, wide choice of type styles and sizes, speed, versatility and low cost.

  (NOTE: Photolettering is ideal for producing quality headlines for low-budget, fast turn-around jobs.)

G. Digitized typesetting — Offers tremendous advantages, including high speed, excellent image quality, wide choice of type styles and sizes, and ability to output both type and graphic information

H. Microcomputer composition — Coupled with laser printers, puts typesetting into the hands of writers and editors

  (NOTE: Microcomputers output to low resolution plain paper laser printers and high resolution photographic imagesetters.)

IV. The typesetting process

A. Where typesetting is done

  1. Independent "type houses"
  2. Printers
  3. Quick-copy shops
  4. Publishers of newspapers, magazines and books
  5. In-house (organizations with own typesetting facilities)

B. How copy is delivered to typesetter

  1. As handwritten material
  2. As typed manuscript
  3. By electronic options such as interfacing via floppy disk or modem

     (NOTE: For anyone planning a career in any activity connected with typesetting, a basic knowledge of working with computer terminals and systems is essential.)

C. Factors affecting cost of typesetting

  1. Condition of copy
  2. Amount of keyboarding required

INFORMATION SHEET

3. Complexity of copy

4. Deadline

5. Number of changes and corrections

D. Factors affecting quality

1. Type should meet quality standards appropriate to the job.

2. Fuzzy type can come from strike-on printers using cloth instead of carbon ribbons, dot matrix printers that are out of alignment, and photo units that are out of focus.

3. Broken characters can come from poor quality transfer and press-on lettering, scratched font negatives and digital disks with flawed sectors.

4. Lines of type may not be parallel to each other if paper goes through the processor's feeder mechanism with uneven tension.

5. Type of paper influences the reproduction quality of type.

V. Copyfitting

A. Calculating total typewriter characters in job to be typeset

1. Typewriter character count method

a. Elite typewriter type has 12 characters per inch, so multiply line length by 12, times number of lines.

b. Pica typewriter type has 10 characters per inch, so multiply line length by 10, times number of lines.

(NOTE: This is not the same as a pica measurement.)

c. For a proportional typewriter, look for manufacturer's specifications, or use character count method. See part 2.

2. Vertical line method

a. Draw a vertical line down the typewritten copy at the end of the shortest full line of type.

b. Count the characters in that line, and multiply by the number of lines.

(NOTE: Count a short line at the end of a paragraph as a full line.)

INFORMATION SHEET

c. Add to the product the number of characters on the right side of the line for total character number.

(NOTE: Copy submitted to a printer should always be typed.)

B. Converting typewritten characters to typesetting

1. Determine type size and type characters per pica from the catalogue, i.e., 2.5 characters per pica.
2. Determine line measure, i.e., 30 picas wide.
3. Determine number of typeset characters in each line, i.e., 2.5 characters × 30 picas wide.
4. Determine number of lines of typeset copy that will be required to set all of typewritten copy.

C. Depth of copy

1. Determine if copy is to be set solid or leaded.
2. Calculate leading plus type point size times number of lines for depth of typeset copy.

EXAMPLE: Translating copy space to type space

This passage is typewritten in pica typewriter type. That means that 10 characters or spaces fall within one inch. Our job is to measure this and calculate how much space it will take if we set it in type. The type font we want to use is 11 point Press Roman. We want our measure (the width of line) to be 34 picas, justified. The average number of characters of 11 point Press Roman that fit within one pica is 2.56. We are going to lead each line 2 points. That is all the information needed to determine how much space this passage will occupy in type.

Step 1 — Measure each line or use vertical rule method and determine number of characters in passage.

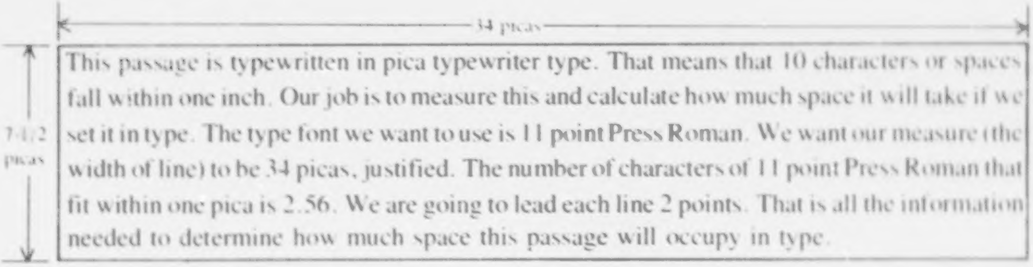
Step 2 — Divide the total number of characters by 2.56 to determine total number of picas in printed passage.

Step 3 — Divide total number of picas by 34 (the number of picas in the line to be printed) to obtain the number of lines in the passage.

Step 4 — Multiply number of lines by 13 points (11 points plus 2 points leading to obtain depth of passage in points; then convert to picas by dividing by 12.

INFORMATION SHEET

Your calculations will show that there are 544 characters in the passage, that will occupy 212.54 picas in 11 point Press Roman, or a little more than six 34-pica measure lines each 13 points deep, or a total of 91 points or almost exactly 7½ picas deep. So the following block should contain the passage, 34 picas wide and 7½ picas deep.



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VI. Marking up copy

A. Specify type ("spec" copy).

1. Mark instructions in margins, not on copy.
2. Use letters or numbers to key layout elements to copy.
3. Mark type style and size for text and display copy.

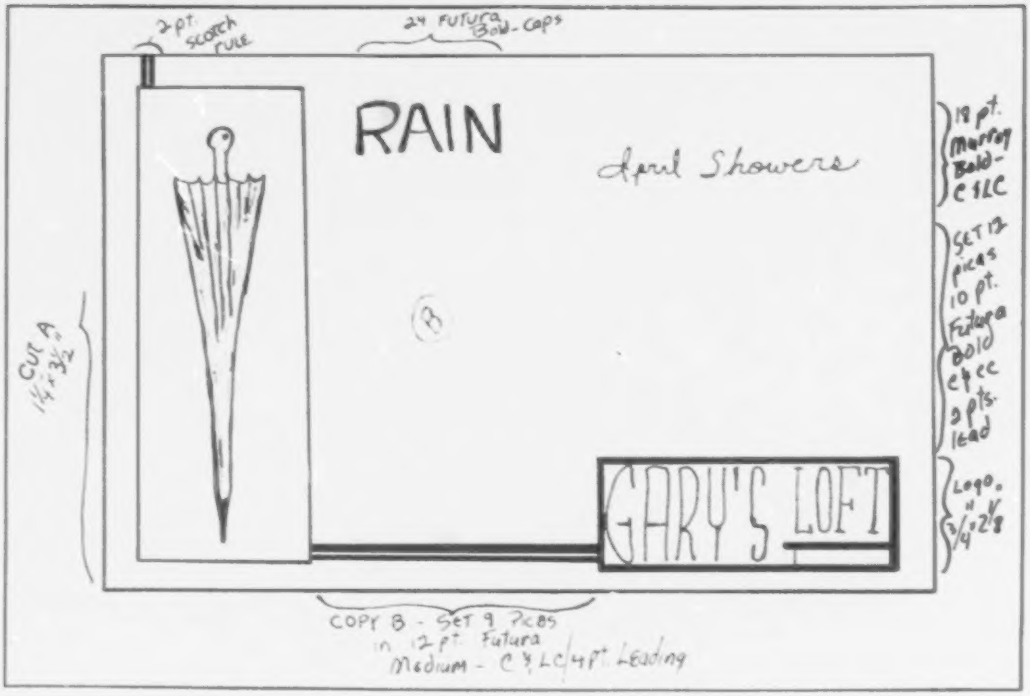
   (NOTE: Trade practice dictates that normal upright posture is assumed unless typesetting specifications state otherwise.)

4. Mark line measures and leading.
5. Mark whether to set flush left, flush right or centered.
6. Specify indentation and paragraph spacing.
7. Provide special instructions if necessary; i.e. letterspacing.

B. Read and correct copy with proper proofreading marks.

(NOTE: Proofreading is covered in Unit X.)

INFORMATION SHEET


2 pt. scotch rule
24 Futura Bold-Caps
RAIN
April Showers
18 pt. Murray Bold-C & LC
Set 12 picas 10 pt. Futura Bold C & LC 2 pts. lead
Logo. 3/4" x 2 1/8
GARY'S LOFT
Cut A 1¼" x 3½"
B
Copy B - Set 9 Picas in 12 pt. Futura Medium - C & LC/4 pt. Leading

BEST COPY AVAILABLE

TYPESETTING
UNIT VII

ASSIGNMENT SHEET #1—CALCULATE COPYFITTING

Name ____ Score ____________

Evaluation criteria	Rating
• Student followed directions	_____
• Student accurately determined the space typewritten copy will occupy in each of the three examples	_____

Directions: Calculate in picas the space the typewritten copy below will occupy if it is:

1. Set solid in 12 point Aldine Roman (2.5 characters per pica average) justified on a 24 pica measure.
2. Set solid 9 point Press Roman (2.9 characters per pica average) justified on an 18 pica measure.
3. Set in 12 point on 15 Aldine Roman (2.5 characters per pica average) justified on a 30 pica measure.

Write your answers in the corresponding blanks.

1. ____
2. ____
3. ____

Measuring and fitting type are not difficult processes, but they require knowledge of the meaning of such terms as point, pica, measure, leading and justify, and some mathematical ability. Also, you have to keep in mind that, although you are dealing with measurements as small as about 1/72 of an inch, you are still not going to be able always to predict exactly how much space a given piece of copy is going to occupy when it is set in type. The reason for this unpredictability is that, in type, different characters are of different widths, and (since it would take too much time to add up all the different widths of all the different characters) we use an average character width in our calculations. As a result, your prediction of space to be occupied by type in a medium-length paragraph may be a line or so long or short. Still your prediction will be close enough to be able to make a good layout, and, with good editing, it is even possible to make it come out "on the nose."

TYPESETTING
UNIT VII

ASSIGNMENT SHEET #2—MARK-UP COPY

Name ______________________________ Score ______________

Evaluation criteria	Rating
• Student followed directions	_____
• Student marked copy showing text size and style	_____
• Student marked column width in picas, display type size and style and leading	_____
• Mark-up is legible and written in margins only	_____

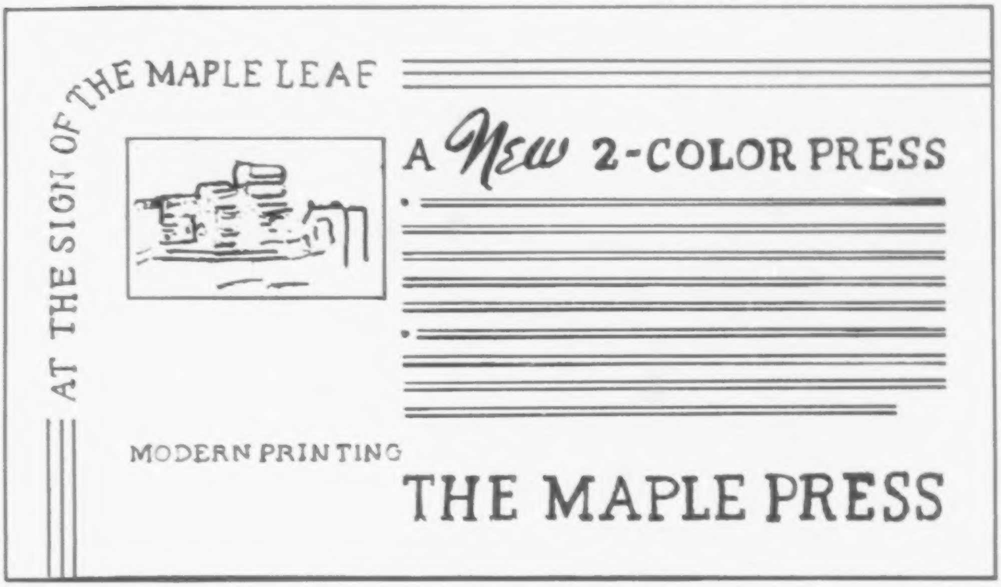
Directions: Mark up the layout shown below. Indicate all of the following:

A. Text type size and style

B. Width of columns in picas

C. Display type size and style

D. Leading



TYPESETTING
UNIT VII

JOB SHEET #1—SET TEXT TYPE USING A PHOTOTYPESETTING MACHINE

Name ______________________________ Attempt Number _____

Date ______________________________ Overall Rating _____

Evaluation criteria	**Rating**
• Student marked up copy properly	_____
• Student set phototypesetting machine according to instructions	_____
• Student typeset copy accurately	_____
• Student developed copy according to instructions	_____
• Student corrected copy (if necessary)	_____
• Student cleaned the work area after completing assignment	_____

Introduction: Whether using a micro-computer or dedicated phototypesetting machine, those in the printing industry will need to be familiar with keyboarding and typesetting concepts as both of these tools will be the dominant machines used in years to come.

Directions: When you are ready to complete this task, ask your instructor to observe the procedure and complete this form.

A. Tools and materials:

   1. Phototypesetting machine
   2. Type image carrier
   3. Line gauge
   4. Copy furnished by instructor
   5. Processor and chemicals

B. Procedure

   1. Consult instruction manual for machine to be used.
   2. Mark up copy from information given by instructor.
   3. Determine format to copy.

JOB SHEET #1

4. Select type style and place font or film strip on machine.

   (NOTE: Instructor will demonstrate or aid you in this step.)

5. Set machine for type size, if necessary.

6. Set machine for leading.

7. Determine line length for copy to be set.

8. Change machine line length to appropriate position.

9. Ask instructor to check all settings.

10. Typeset copy, following directions as marked.

11. Prepare chemicals for processor, if necessary.

12. Run out necessary leader, and remove photo paper from typesetting machine.

13. Develop paper in processor.

14. Proofread copy.

15. Make corrections.

16. Turn in for evaluation.

17. Clean up all materials from areas used.

TYPESETTING
UNIT VII

JOB SHEET #2—SET TYPE USING A MICROCOMPUTER

Name ______________________________ Attempt Number ________

Date ______________________________ Overall Rating __________

Evaluation criteria	**Rating**
• Student marked up copy properly	_____
• Student set computer according to instructions	_____
• Student typeset copy accurately	_____
• Student printed copy according to instructions	_____
• Student corrected copy (if necessary)	_____
• Student cleaned the work area after completing assignment	_____

Introduction: Whether using a micro-computer or dedicated phototypesetting machine, those in the printing industry will need to be familiar with keyboarding and typesetting concepts as both of these tools will be the dominant machines used in years to come.

Directions: When you are ready to complete this task, ask your instructor to observe the procedure and complete this form.

A. Tools and materials

1. Computer, such as Macintosh, IBM or IBM compatible
2. Copy furnished by instructor
3. Line gauge
4. Plain white or coated paper
5. Laser printer

JOB SHEET #2

B. Procedure

1. Consult instruction manuals for computer and software to be used.
2. Mark up copy from information given by instructor.
3. Turn on computer, open software and set for type style and size, format, leading and line length.
4. Ask instructor to check all settings.
5. Typeset copy, following directions as marked.
6. Turn on printer and load paper, if necessary.
7. Print.
8. Proofread copy.
9. Make corrections.
10. Turn in for evaluation.
11. Clean up all materials from areas used.

DESIGN PRINCIPLES
UNIT VIII

UNIT OBJECTIVE

After completion of this unit, the student should be able to apply principles of design in constructing printed communication. Competencies will be demonstrated by completing the assignment sheets and the unit test with a minimum score of 85 percent.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms related to design principles with their correct definitions.
2. Match terms related to color with their correct definitions.
3. Arrange in order steps in the design process.
4. Select from a list things the designer wants from the printer.
5. List functions of design.
6. List components of printed communication.
7. Distinguish between the three stages of layout.
8. Select true statements concerning principles of design.
9. List basic types of art and their sources.
10. Select true statements concerning working with color.
11. List five kinds of publication design.
12. Make thumbnail and rough layouts. (Assignment Sheet #1)
13. Label magazine ads that utilize principles of design. (Assignment Sheet #2)
14. Identify types of art in printed material. (Assignment Sheet #3)
15. Complete a drawing of the printer's color wheel. (Assignment Sheet #4)
16. Identify six basic color combinations in printed material. (Assignment Sheet #5)

DESIGN PRINCIPLES
UNIT VIII

INFORMATION SHEET

I. **Terms and definitions related to design principles**

A. Alley—Space between columns on a page

B. Align—To arrange elements so they line up with other elements

C. Art—All pictorial matter; photographs, paintings, drawings, charts and graphs, etc.

D. Balance—Proper placement of elements by weight

E. Bleed—Any image that extends to the edge of a sheet of page after trimming

F. Clip art—High contrast drawings usually on white, slick paper and made to be cut out and pasted into place for the printer

G. Color swatch—Sample of an ink color

H. Comprehensive (comp)—Layout that looks almost like the final printed piece will look

I. Continuous tone art—Photographs, paintings and other images having a completed range or variation of tones from white to black

J. Copy—Everything that will be printed or reproduced: type, photographs, illustrations, etc.

K. Design—The plan and arrangement of graphic elements

(NOTE: The person creating a design starts from scratch, making most of the decisions as to medium, size, typography, art, and so on. The person making a layout uses what elements are made available.)

L. Element—Each individual portion of the printed message

EXAMPLES: A heading, photograph, illustration, text, rule, border

M. Emphasis—Arrangement of elements that attracts attention to the most important element

N. Four-color process—Technique of printing using the four process colors of ink to simulate full color

O. Gutter—Space where two pages meet at the binding

INFORMATION SHEET

P. High contrast—Few or no tonal gradations between dark and light areas

Q. Layout—The preliminary plan or blueprint for any piece to be printed

(NOTE: A layout makes use of what may already be available or what may be dictated by others.)

R. Line art—Any solid image consisting of black lines on white background without gradation of tones

(NOTE: This includes illustrations to which shading films have been added to give the appearance of gray areas or tints.)

S. Logo—A trademark or unique type of lettering spelling out the name of a company or product

T. Margin—Space that frames the content of a page or sheet

U. Optical center—Point slightly above and to the left of the mathematical center

V. PMS—Abbreviation for Pantone matching System, a widely used method of specifying spot color by means of numbered color samples available in swatchbooks

W. Proportion—The size relationship of one part of the design to the other parts

X. Rough-Simple sketch showing the size and position of the various elements of the design; usually an actual size, somewhat more refined version of the thumbnail

Y. Rule—Line used for graphic effect

Z. Screen tint—Area of image printed with dots so ink coverage is less than 100% and simulates shading or a lighter color

AA. Sequence—Arrangement of elements to promote eye movement in logical order

BB. Thumbnail (miniature)—A small, quickly-drawn sketch that shows a possible way to combine various elements of a proposed printed piece

CC. Unity—The overall sense that all elements are related

DD. White space (negative space)—Space not occupied by type, art or other graphic elements

INFORMATION SHEET

II. Terms and definitions related to color

A. Primary colors—The three basic colors—red, yellow and blue—from which all other color can be produced, at least in theory

B. Cool colors—Restful colors like blue and green that tend to recede from the viewer

C. Warm colors—Stimulating colors like red and orange that tend to project toward the viewer

D. Hue—Distinctive characteristics of a given color that enable it to be recognized by name

E. Intensity—The full strength of purity of a color

F. Shade—Black added to a color to make it darker

G. Tint—White added to a color to make it lighter

H. Tone—Range of light values from white to black, bright to dull

III. Steps in the design process

A. Define the problem and audience—Decide what is to be communicated and to whom.

(NOTE: Answer the who, what, where, when, and how questions at this time.)

B. Gather information—Research the problem by reading, discussing, and thinking about it.

C. Find solutions—Think of all the bits of information you have gathered and decide the best way to solve the problem.

D. Evaluate solutions—Decide on the best possible solution; then reexamine the solution possibilities.

(NOTE: Decide if it is a cost-effective solution.)

E. Refine ideas and present solution—Prepare copy and layout.

IV. Things the designer wants from the printer

A. Fast answers to queries

B. Attention to detail; highest possible quality

INFORMATION SHEET

C. A fair price

D. On time delivery

(NOTE: The designer is concerned with the visual characteristics of the printed piece and the printer has to translate the designer's vision into what is attainable from typesetting, printing and finishing processes and paper or other printing surfaces.)

V. Functions of design

A. Attract, then hold attention of desired audience

B. Make message easy to read

C. Create a clear, orderly flow of graphic elements

D. Leave some lasting impression

E. Use appropriate technology to deliver the message efficiently and economically

VI. Components of printed communication

A. Body type (text)

B. Display type (headings)

C. Art

D. Other graphic devices (such as logos, rules, borders, and screen tints)

E. White space

VII. Layout stages

(NOTE: The three stages of layout are classified according to the care in drawing them.)

A. Thumbnail

1. Small, quick sketch
2. Used to explore and develop an idea
3. Shows different ways to lay out printed piece
4. Also called the miniature

B. Rough

1. Actual size

2. Aids in visualizing spacing, balance, proportion and emphasis

3. Tests whether the idea from the thumbnail stage works on a larger scale

4. Has specifications for printing job written in margin
5. Serves as guideline for making rough layouts

   a. Artwork and photos are drawn to suggested size, shape and tone

   b. Heads may be indicated with zigzag lines or lettered in, but type styles or weights are not approximated

   c. Copy is indicated with carefully drawn parallel lines

C. Comprehensive

1. Actual size

2. Looks as much like final printed piece as possible

3. Shown to the client who may have difficulty visualizing job in the rough layout stage

VIII. Principles of design

(NOTE: These design principles are not listed in order of importance. They are interactive. One principle should support another.)

A. Balance

(NOTE: Balance is achieved through control of size, tone and position of the elements.)

1. Formal balance

   a. Design is symmetrical.

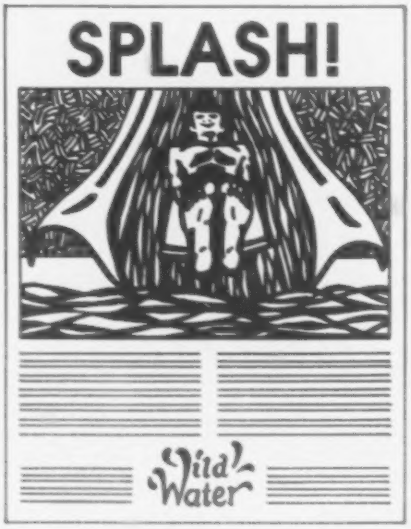
   b. Each element that appears on one side of the design also appears on the other side.

   c. Usually built around a vertical center line

d. White space is passive.

(NOTE: Formal balance is generally used where dignity, formality and conservatism are required.)

Formal Balance



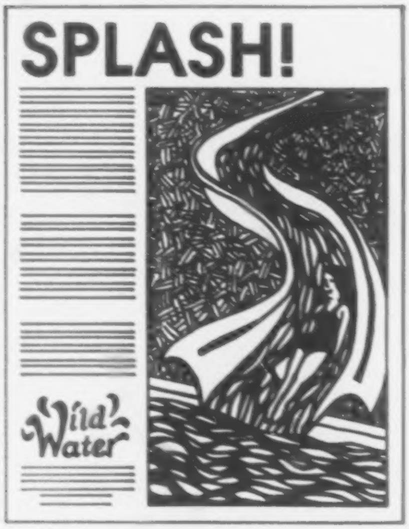
2. Informal balance

a. Design is asymmetrical.

b. Elements are distributed in such a manner that their weights balance each other.

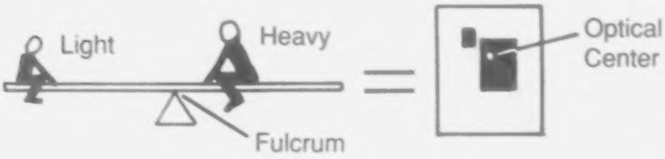
INFORMATION SHEET

Informal Balance



c. The heavier the element in relation to other elements, the nearer it should be placed to the center.

(NOTE: Finding the center of balance among elements is similar to finding the center of balance on a teeter-totter.)



d. White space is active.

(NOTE: Informal balance is generally used for dramatic effect.)

B. Proportion

1. Space within a page should be broken up into pleasing proportions.

   a. Width of page to depth

   b. Width of element to depth

   c. Size of one element to another

   d. Space between two elements and a third

INFORMATION SHEET

e. Amount of light area as opposed to dark area, and color to noncolor

(NOTE: Generally, unequal dimensions make the best design.)

2. Page sizes

   a. Regulation of sheet dimensions will aid in achieving proportion.

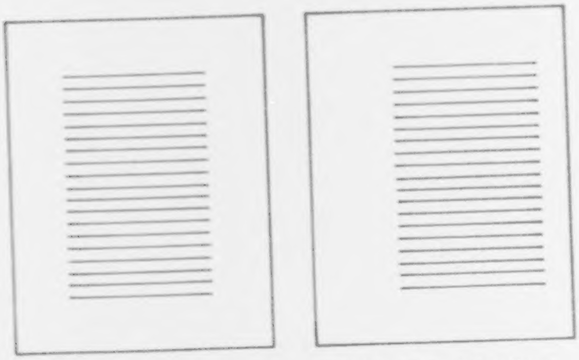
   b. Page sizes are usually in a 2-to-3 or 3-to-5 width-to-height ratio.

3. Margins

   a. Single page margins should make type area appear optically centered.

   b. Facing pages normally have inside (gutter) margins 1/2 to 3/4 size of outside margins.

   c. Equal margins are monotonous, while unequal margins provide interest.



Equal Margins

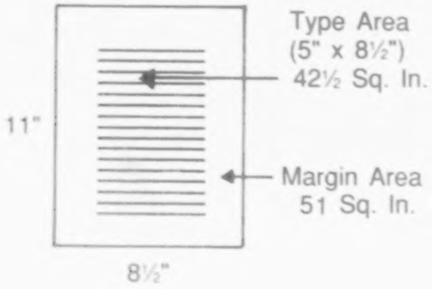
Unequal Margins

4. Type in relation to page size

   a. Ideal proportion is type area slightly more or less than area of all four margins.

INFORMATION SHEET

b. Variations, for purposes of economy or design, are often made.



5. Shapes

   a. Verticals are the most lively.

   b. Squares should be avoided.

C. Sequence

1. Directional pattern (Transparency 1)

   a. Examination of layout usually begins at optical center.

   b. Exploration of layout continues in a clockwise direction, from center, to upper left, and around.

   c. Pointing devices are often used to direct the eye.

   d. Element positioning may suggest eye movement.

   e. Rhythm (a sense of purposeful repetition) may be used.

   f. Natural eye movement is utilized.

      1. Big elements to small elements

      2. Black to white

      3. Color to noncolor

      4. Unusual shapes to regular shapes

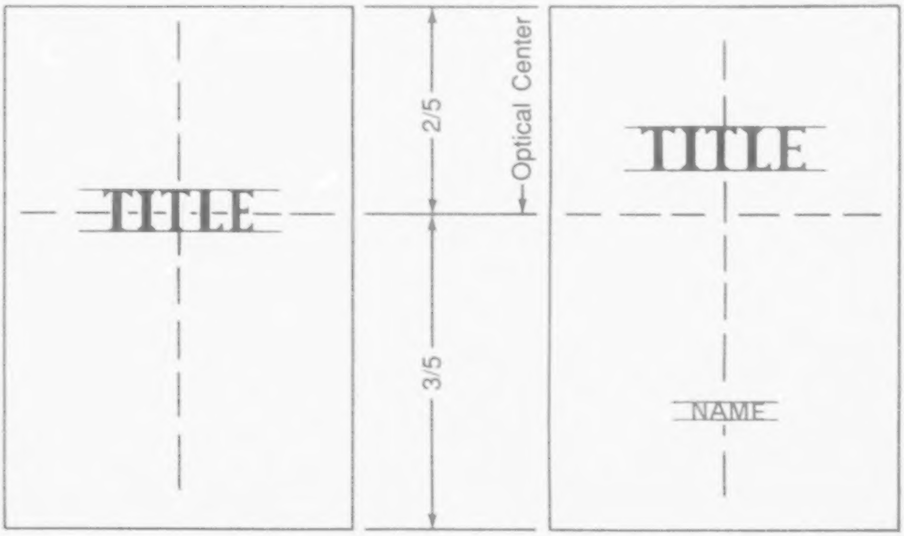
      (NOTE: The order in which the reader perceives the elements on a page should not be left to chance.)

INFORMATION SHEET

2. Horizontal and vertical centers
    a. Horizontal
        1. The center from side to side
        2. Mathematical center, when measured

            (NOTE: If page is to be bound, the type of binding may require consideration in determining the center of the design.)
    b. Vertical
        1. Optical, or apparent center, from top to bottom
        2. Not a true mathematical center

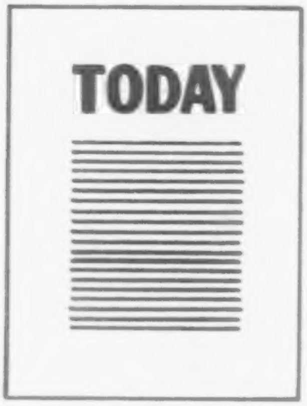
            (NOTE: To find the optical center, divide the page vertically into 5 equal parts; the center of balance is not at the mathematical center, but rather 2/5 of the way down the page.)
        3. Spot the eye hits just when it encounters a printed page
        4. Center of balance between two or more elements should follow the page center of balance



INFORMATION SHEET

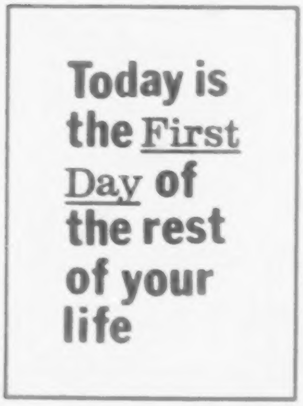
D. Emphasis

1. One element (or a group of elements) should dominate all others.
2. Expressed negatively, the principle is contrast.
3. Methods used to achieve emphasis
    - a. Make one element larger or heavier than other elements on layout.



Larger, Heavier Type

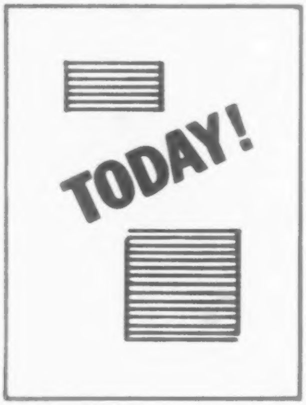
    - b. Use contrasting typefaces and type variations.



Contrasting Type

    - c. Single out an element; move it away from clutter of other elements.

d. Arrange one element on page to contrast with other elements.



Contrasting Arrangement

e. Give one element a different shape from all others.

f. Use different color ink for one element.

g. Use a screen tint.

  1) For one element

  2) For all but one element

h. Place borders around one element.

i. Use ruled lines.

  1) Around one element

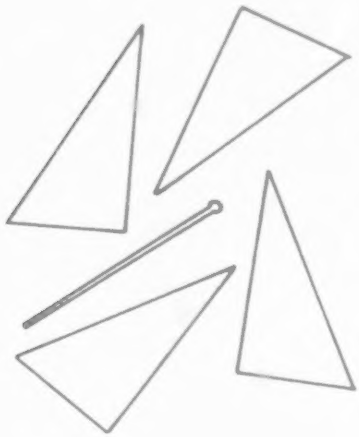
  2) Pointing toward one element

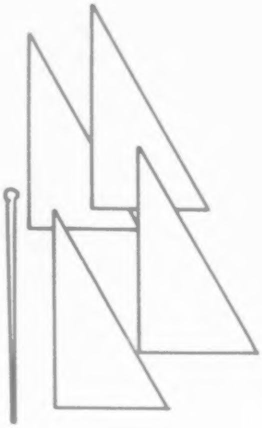
j. Reverse an element (print white letters on a black background).

INFORMATION SHEET

E. Unity

1. A layout has unity when the elements appear to be related and held together, and state a single, unified theme.





(NOTE: The pile of elements on the left have been arranged randomly, but if they are placed as shown on the right, they seem to belong together.)

2. Methods for achieving unity

   a. Run a border around the piece.

   b. Squeeze white space to the outside.

   (NOTE: White space affects the quality and readability of material to be printed. More information can often be communicated with less type and careful use of white space.)

   c. Align two or more elements on a common axis to form a relationship.

   d. Use elements that harmonize with each other.

      1. Type harmony may be achieved when using only one family.

      2. Type styles should be appropriate to shape of page.

      EXAMPLE: Use condensed type on narrow pages, extended type on wide pages.

INFORMATION SHEET

        3. The typeface should look as if it were designed to fit the style of the art — it must fit the mood of the piece, the overall theme.

        4. Rules and borders should be appropriate for type.

        EXAMPLE: Use heavy rule with sans serifs, and thick and thin rule with serifs.

    e. Practice simplicity

        1. Avoid too many different type styles.

        2. Elaborate, fancy type styles can ruin the effectiveness of a design unless carefully and sparingly used.

        3. Art and type should reflect mood of printed piece.

        4. More can often make less happen.

IX. **Working with art** (Transparencies 2 and 3)

A. Basic types of art

1. Line art

2. Continuous tone art

(NOTE: More and more attention is being paid to the role of art in printed communications.)

B. Factors that affect art selection

1. Availability

2. Appropriateness

a. Photographs are more realistic—they can convey believability and credibility.

b. Drawings are more unreal—they are more effective with abstractions.

3. Quality

4. Mechanical feasibility

5. Cost

INFORMATION SHEET

C. Sources of art

  1. Photographs

    a. Your own photographs

    b. Professional photographers

    c. Stock photo houses that sell prints for one-time use

    d. Photos from government agencies, trade and professional organizations, businesses, chambers of commerce, etc.

  2. Line art

    a. Your own drawings

    b. Artists and illustrators

    c. Clip art

    d. Public domain sources

    e. Drawings from government agencies, trade and professional organizations, businesses, chambers of commerce, etc.

X. Working with color

A. Two basic categories of color printing

  1. Process color — Method used to reproduce full-color continuous-tone copy, such as color photos and paintings

    a. Uses the four process colors: yellow, magenta (process red), cyan (process blue), and black

    b. Requires separation, the breaking down of the original copy into the four process colors

    c. Requires registration, the accurate positioning of one printing plate over another so that all are in the correct relationship

  2. Spot (flat) color — Color other than process color; usually printed as solid areas for type, line art, or in lines, bars, boxes and screened tints

    a. Used for the color reproduction of any black and white copy

    b. Designated by the number of colors: one-color, two-color (most common), three-color, four-color, etc.

INFORMATION SHEET

c. Requires a separate printing plate and a separate run of the press for each color, so the more colors used, the more expensive the job

d. Pantone Matching System (PMS)

1. An international printing, publishing and packaging color language providing an accurate method for selection, presentation, specification, communication, matching and control of color

2. Based on 11 Pantone Colors (9 basic colors, plus black and transparent white) which mixed in varying amounts produce more than 500 different colors

3. Colors are numbered and arranged in a swatchbook

(NOTE: The designer looks through the swatchbook, chooses the color, and indicates its number.)

B. The printer's color wheel

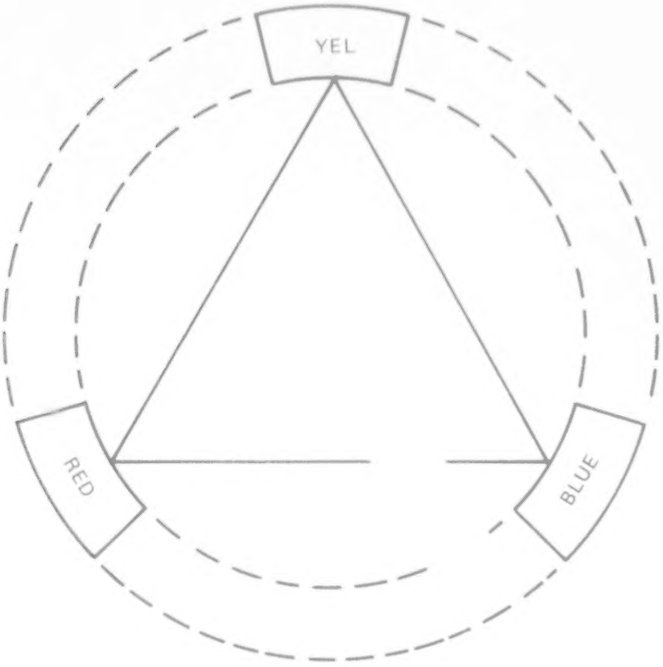
1. Primary colors

a. Red, yellow, and blue

b. Foundation of color wheel

INFORMATION SHEET

c. Place in triangular position as shown



d. Subtractive process primary colors—red (magenta), yellow, and blue (cyan)

   1. White light interacts with a colorant (such as ink) which subtracts (absorbs or filters out) some of the colors from the white light and allows the unabsorbed colors to be seen by the eye.

   2. The subtractive process is used to produce printing in full color.

e. Additive process primary colors — red, blue, and green

   1. Light rays of certain colors are added to other light rays to produce (add up to) a new color.

   2. The additive process is used in process color separation, color photography, color television, and stage lighting.

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2. Secondary colors

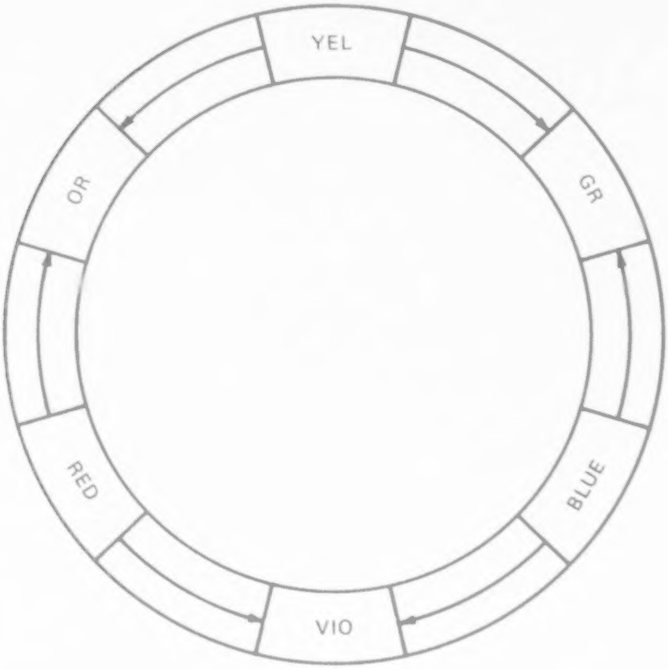
   a. Orange, green, and violet

   b. Formed by a combination of any two of the primary colors.

   c. Orange is made from red and yellow, and should be placed equidistant between them.

   d. Green is made from yellow and blue, and should be placed equidistant between them.

   e. Violet is made from red and blue, and should be placed equidistant between them.



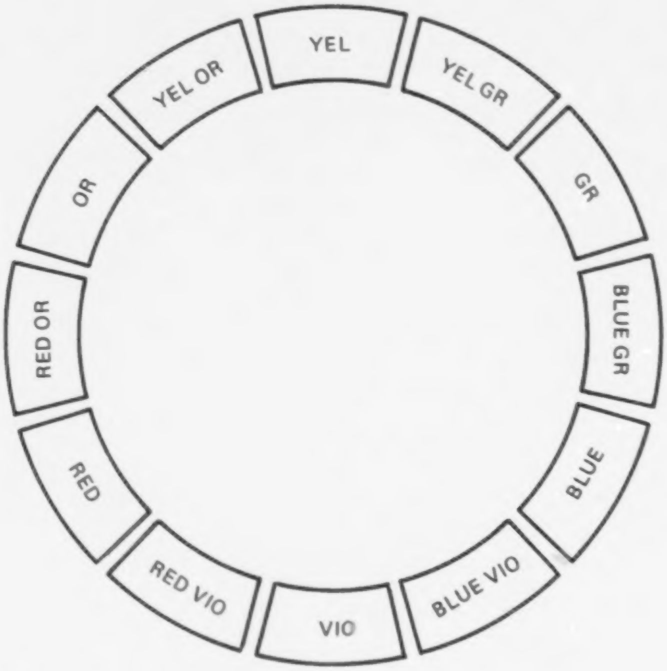
3. Intermediate colors

   a. Colors are red-orange, yellow-orange, yellow-green, blue-green, blue-violet, and red-violet.

   b. Formed by combining primary and secondary colors

INFORMATION SHEET

EXAMPLE: Red-orange is made from red and orange, and should be placed between them on the color wheel.



4. Tertiary colors

    a. Formed by a combination of any two of the secondary colors

    b. The tertiary colors are russet (orange and violet), citrine (orange and green), and olive (green and violet).

C. Color combinations

1. Monochromatic harmony

    a. Utilizes two or more tones of one color

    b. Using colored stock with a darker shade ink of the same color will result in harmonious printing.

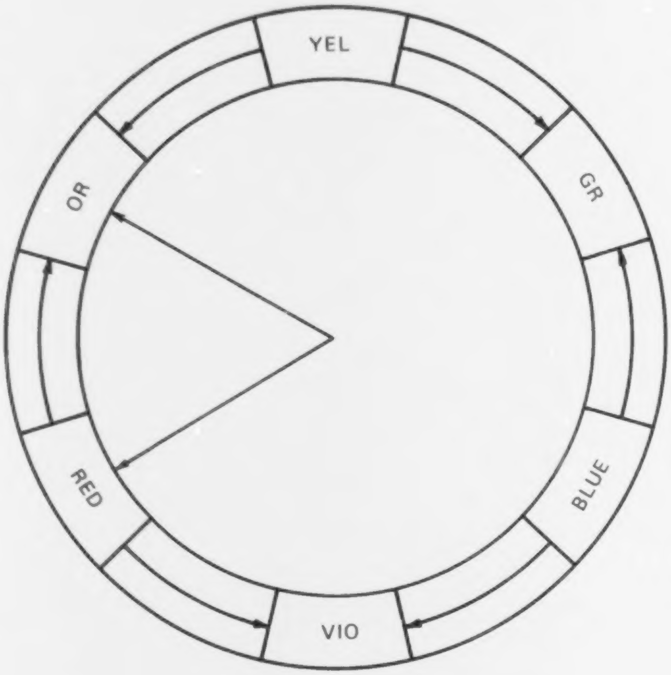
    c. Using white stock, monochromatic harmony may be achieved by using dark colored type with tint blocks, rules, or borders.

INFORMATION SHEET

2. Analogous harmony

   a. Combining adjacent (next to each other) colors of the printer's color wheel will create harmony.

   b. More than two adjacent secondary colors should not be used, as they will not harmonize.



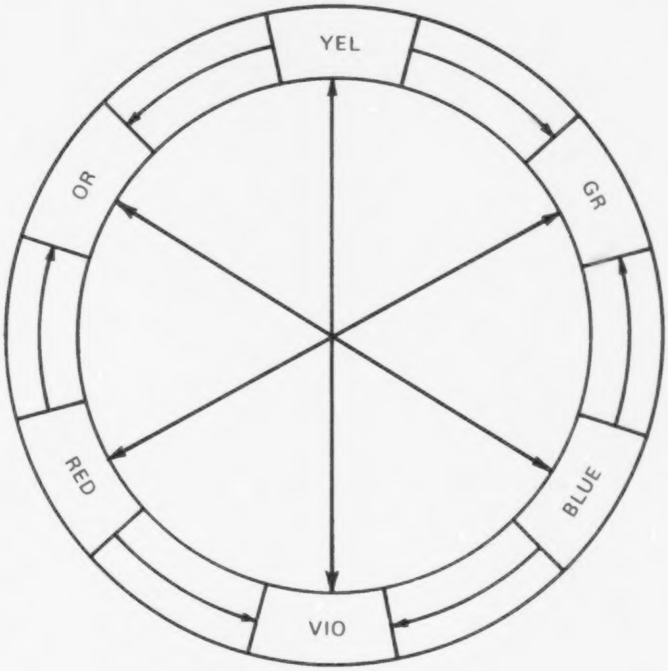
3. Complementary harmony

   a. Utilizes two colors directly opposite from each other on the color wheel

   b. Forms contrasts that attract attention

INFORMATION SHEET

c. Should not be used together in pure form, rather use one light and one darker color

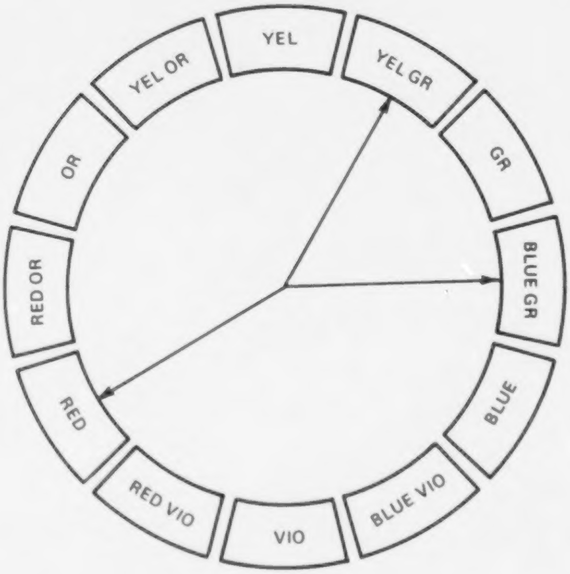


4. Split complements

   a. The colors on each side of the complement may be used instead of the complementary color.

INFORMATION SHEET

b. Use of split complements results in three-color printing.



5. Triad method

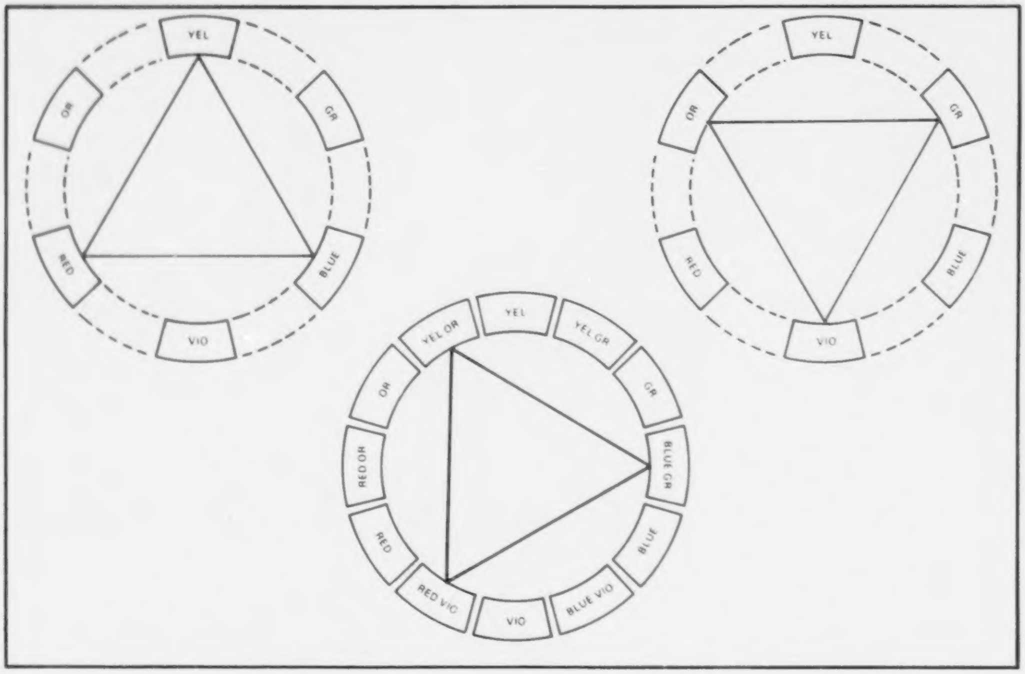
   a. The triangle that is formed on the color wheel by the primary colors of red, yellow, and blue may be rotated to any other combination of three colors to create triad harmony.

   b. When using triad combinations, they should not all be of the same strength or intensity.

      (NOTE: One should be light, one dark, and the other halfway in between.)

INFORMATION SHEET

c. Equal amounts of the colors should not be used, but a large amount of one, and smaller amounts of the other two will give harmonious results.



6. Black, white, and gray

   a. May be used with any color or combination of colors and result in perfect harmony

   b. Colors that do not harmonize may be brought into harmony by separating them with bands or edgings of black, white, or gray.

D. Selecting color

1. Preferences

   a. Men often prefer blue.

   b. Red is usually the first choice for women; among younger women purple is a favorite.

   c. Teens like pure, brilliant colors and fluorescents.

   d. Older persons may prefer soft tones.

INFORMATION SHEET

2. The meaning of color

   a. Cool colors, such as blue and green, depict calmness and serenity.

   b. Warm colors, such as red, yellow, and their variations, stimulate and show action.

3. Special inks and protective coatings

   a. Special colors are available; flourescent ink in many bright colors, and metallic ink in gold, bronze and silver.

   b. Varnishing may be used to enhance and protect photographs during printing.

E. Pointers on using color

1. Choose colors as dictated by message content, purpose and audience.

2. One color should dominate.

3. When using more than one color, reserve the darkest for the basic message, using the additional color(s) for emphasis or setting a mood.

4. When colored inks are used on colored paper, best results will be obtained with a shade of the same color or a complementary color.

5. Type in color, or on colored stock, is dangerous; be concerned with readability.

6. Type printed in reverse should be within a fairly dark area.

7. Use four-color process sparingly; be sure the quality of the art warrants the cost.

8. Exercise restraint in the use of additional color; generally a single spot of color is sufficient.

9. Develop a library of color use by collecting good examples of pieces that use color effectively.

XI. Kinds of publication design

A. Books

B. Magazines

C. Newspapers

D. Newsletters

INFORMATION SHEET

E. Miscellaneous publications

EXAMPLES: Leaflets, folders, booklets, brochures, catalogs, directories, training manuals, annual reports, calendars, yearbooks, and other pieces produced by advertising agencies, public relations firms or departments, independent art studios or freelancers, and commercial and in-house printers.

(NOTE: Regardless of the type of printed piece, the principles of design are unchanging. However, the designer has a freer hand in designing miscellaneous publications.)

DESIGN PRINCIPLES
UNIT VIII

ASSIGNMENT SHEET #1—MAKE THUMBNAIL AND ROUGH LAYOUTS

Name ____ Score ____________

Evaluation criteria	**Rating**
• Student followed directions	_____
• Student submitted an ad containing headline, art, body copy and logo	_____
• Student submitted at least three thumbnail sketches, and one rough layout according to directions	_____

Directions: Pick out a full-page ad from a consumer magazine or a quarter-page ad from a newspaper having art, a headline, body copy and log.

1. Do a rough layout in reverse. Using a pencil and tracing paper, trace the ad, taking care to suggest the size, shape and tone of the art. Letter in the headline. Indicate body copy by ruling parallel lines. When you have finished, compare the original with your tracing.

2. Rearrange the elements in the ad you selected, not necessarily to improve the ad, but to see what other arrangements are possible. Do at least three thumbnails on 8 ½" x 11" white paper to explore alternative combinations. Be sure your thumbnails are kept in correct proportion.

3. Choose the thumbnail you like best, and do a rough layout of it.

4. Turn in the original ad, your tracing of it, your thumbnails and new rough.

DESIGN PRINCIPLES
UNIT VIII

ASSIGNMENT SHEET #2--LABEL MAGAZINE ADS THAT UTILIZE PRINCIPLES OF DESIGN

Name ______________________________ Score ____________

Evaluation criteria	**Rating**
• Student followed directions	_____
• Student submitted ad or ads labeled for proportion, balance, sequence, emphasis and unity	_____

Directions: Go through magazines and locate ads that utilize the principles of design studied in this unit. Cut these ads out, paste them on separate sheets of paper and label each ad as to what design principle is shown. Find at least one ad utilizing each of the following design principles.

1. Balance
2. Proportion
3. Sequence
4. Emphasis
5. Unity

DESIGN PRINCIPLES
UNIT VIII

ASSIGNMENT SHEET #3—IDENTIFY TYPES OF ART IN PRINTED MATERIAL

Name ______________________ Score __________

Evaluation criteria	Rating
• Student followed directions	_____
• Student submitted at least three examples of line art and three examples of continuous art	_____

Directions: From magazines, newspapers and/or newsletters, locate examples of the two basic types of art listed below. Bring to class three examples of each and be prepared to tell why you chose them.

1. Line art
2. Continuous tone art

DESIGN PRINCIPLES
UNIT VIII

ASSIGNMENT SHEET #4—COMPLETE A DRAWING OF THE PRINTER'S COLOR WHEEL

Name ______________________________ Score ____________

Evaluation criteria	**Rating**
• Student followed directions	_____
• Student correctly completed color wheel	_____

Directions: Complete the printer's color wheel below by writing the color names in the appropriate positions.

A. Red

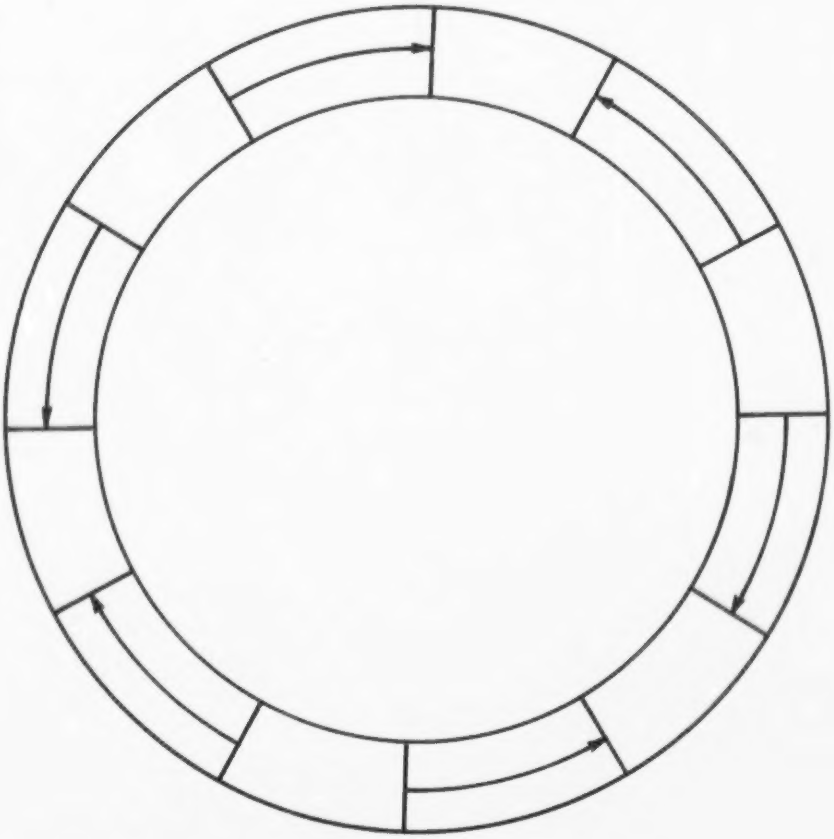
B. Green

C. Violet

D. Orange

E. Yellow

F. Blue



DESIGN PRINCIPLES
UNIT VIII

ASSIGNMENT SHEET #5—IDENTIFY SIX BASIC COLOR COMBINATIONS IN PRINTED MATERIAL

Name ______________________________ Score __________

Evaluation criteria	**Rating**
• Student followed directions	____
• Student submitted at least one example of each of the basic listed color combinations	____

Directions: From magazines, newspapers and miscellaneous publications, find and identify examples of the six basic color combinations listed below.

1. Monochromatic
2. Analogous
3. Complementary
4. Split complements
5. Triad
6. Black, white, and gray

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

UNIT OBJECTIVE

After completion of this unit, the student should be able to prepare paste-ups, and crop and scale art. Competencies will be demonstrated by completing the job sheets and the unit tests with a minimum score of 85 percent.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with paste-up principles and procedures with their correct definitions.
2. Identify paste-up tools and materials.
3. Select true statements concerning basic paste-up steps.
4. Match registration methods with their correct descriptions.
5. Select true statements concerning use of clear acetate and ruby film.
6. Complete statements associated with processing art for production.
7. Match kinds of imposition with their correct descriptions.
8. Select true statements concerning postal regulations.
9. Prepare a paste-up. (Job Sheet #1)
10. Prepare overlays using clear acetate and ruby film. (Job Sheet #2)
11. Crop a photograph. (Job Sheet #3)
12. Scale copy. (Copy Sheet #4)

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

INFORMATION SHEET

I. **Terms and definitions**

A. Acetate — Thin, flexible sheet of transparent plastic used to make overlays

B. Adhesive — Wax, rubber cement, glue stick, spray mount or double-faced tape used to hold copy to base sheet

C. Base sheet — Surface on which copy is pasted up; usually smooth white hot press illustration board or preprinted grid sheet with all critical guidelines in place

D. Bleed — Printed image filling one or more margins and running off the edge of a sheet or page

E. Camera-ready copy — Copy which is ready to be photographed for platemaking according to the technical requirements of either quick or commercial printing

(NOTE: The camera part of camera-ready copy refers to process cameras.)

F. Continuous tone copy — Any image that has a complete range of tones from black to white: photographs, paintings, drawings, etc.

G. Copy — Everything that will be printed: type, art, other graphic elements

H. Cover sheet — Second overlay or flap of heavy kraft or cover paper sometimes attached to paste-up for added protection and better appearance

I. Crop — To mark a photograph or drawing to indicate which portions are to be reproduced

J. Dropout — A term indicating that certain areas of a photograph or screen tint are to be left blank or unprinted

K. Dummy (mockup) — A detailed diagram instructing paste-up person how to arrange elements of a printing job

L. Flop — To reproduce a photograph or drawing so that it faces the opposite way

M. Folding dummy — A set of folded sheets showing the placement of pages and elements within a printed piece; it may be either rough or comprehensive, depending on the client's needs

N. Ganging — To make several halftones at the same enlargement or reduction at one time; also, to group together two or more jobs on a single press run

INFORMATION SHEET

O. Gripper edge (leading edge) — Edge of a sheet of paper that enters a sheet-fed press first

(NOTE: Allowance for gripper bite must be made by the designer, paste-up person and stripper.)

P. Imposition — Arrangement of pages so that when printed, the press sheet can be folded and bound with the pages in proper sequence

Q. Keyline art — Art which is prepared for multiple color printing in which the colors overlap slightly

R. Line copy — Any image that is solid black with no gradation of tones: clip art, type, rules, dots, etc.

S. Overlay — A sheet of acetate placed over a paste-up to hold copy that will appear in another color; also a tissue or tracing paper flap to protect paste-up from dirt and damage and indicate instructions to the printer

T. Paste-up (mechanical) — Camera-ready assembly of type, art and other graphic elements pasted on base sheet in exact position and containing instructions, either in the margins or on an overlay, for the printer; also, as verb, to adhere copy to grids or base sheets

U. PMT — Abbreviation for photomechanical transfer, a Kodak trade name for a process used to make same size, enlarged or reduced positive paper, reverse or acetate prints of line and continuous tone copy

V. Process camera — Large, sturdily built graphic arts camera used to photograph paste-ups and other copy, while at the same time reducing or enlarging the images as needed

W. Proportional scale — A circular slide rule used to calculate percent that an original image must be reduced or enlarged to yield a specific reproduction size

X. Reverse — To reproduce the whites in an original as black and the blacks as white

Y. Ruby film — A two-ply, peel-apart film masking material; usually ruby-red film adhered to a clear film base

(NOTE: Rubylith is the Ulano trade name for one widely-used ruby film.)

Z. Scaling — Process of calculating the percentage by which images should be enlarged or reduced

AA. Signature — A printed sheet containing a number of pages, usually 4, 8, 16, 32 or 64, that is folded and bound to become part of a publication

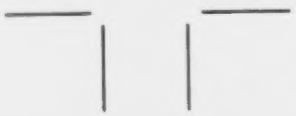
BB. Surprint — A dark image printed over a lighter image area

INFORMATION SHEET

CC. Trailing edge — Edge of the press sheet that is printed last

DD. Trim marks — Right angle marks on paste-up to show the four corners of the printed piece after it has been printed and trimmed

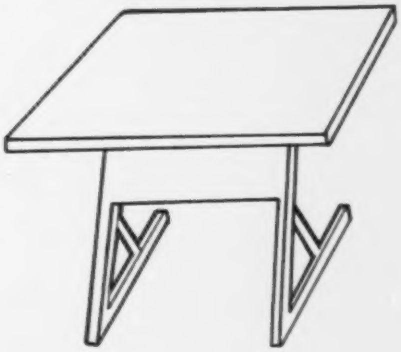
(NOTE: Trim marks are also called *tick marks* or *corner marks*.)



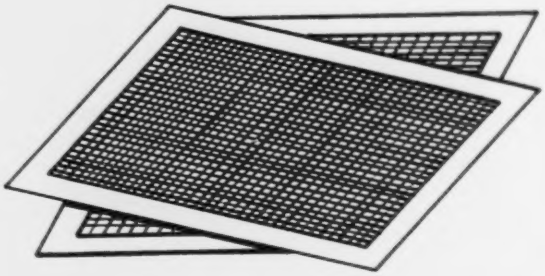
EE. Window — Block of masking material on a paste-up that shows position of a photograph or other visual element; a transparent opening in line negatives into which a halftone is stripped

II. Paste-up tools and materials

A. Drawing table (or light table)

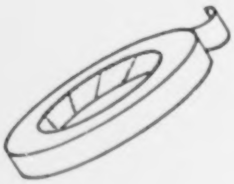


B. Grid or base sheets



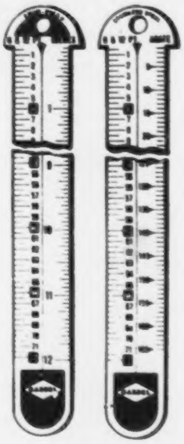
C. T-square

D. Masking or drawing tape

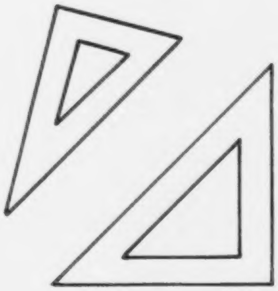


INFORMATION SHEET

E. Line gauge (or pica pole)



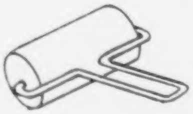
F. Triangles



G. Non-reproducing light blue pencil

H. Fine-tipped black pen

I. Burnishing roller



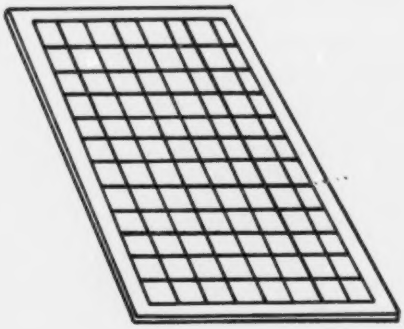
J. Scissors

K. Opaque white paint or correction fluid

L. Erasers

INFORMATION SHEET

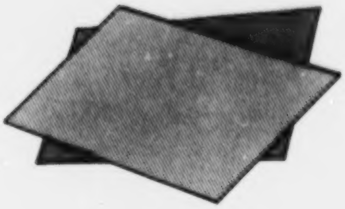
M. Trimboard



N. Proportional scale

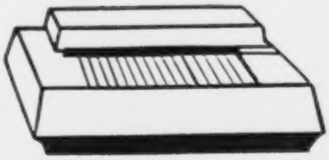
O. X-Acto knife

P. Mechanical films



Q. Waxer, rubber cement or other adhesives

(NOTE: Waxing is the cleanest, fastest and most convenient method and allows elements to be moved easily from one position to another, while rubber cement, the old standard, provides better bonding with the main disadvantage being general messiness.)



INFORMATION SHEET

III. Basic paste-up steps

A. Establish a plan: draw a full-size layout or dummy.

B. Organize all tools and materials.

(NOTE: Always maintain clean and safe work habits.)

C. Place base sheet square on table.

(NOTE: For basic-quality pieces and periodicals where precision is not required, paste-ups are usually done on preruled paper sheets tailored to the publication's format; premium-quality pieces, such as those produced by advertising agencies, are usually done on heavy and expensive illustration board.)

D. If not using a preruled sheet, draw light blue (nonreproducible) guidelines on base sheet.

E. Using fine-tipped black pen, draw trim marks and dotted folding lines on base sheet.

F. Trim excess paper from elements.

(NOTE: Some people prefer to trim and wax everything before beginning paste-up. It is better to wax small pieces of type and art before trimming so they won't be lost in the waxer. If using rubber cement or other adhesive, apply it as you go.)

G. Position and paste down line copy on base sheet.

(NOTE: Work from top of layout downward, pasting and squaring all elements. Keep checking for proper positioning and straightness to catch any flaws as quickly as possible.)

H. Position and paste down continuous-tone copy.

(NOTE: If halftones are made as film negatives, they need only be indicated for size and position; indicate by drawing a red holding line, using ruby film, or pasting down opaque red or black blockout film; key all photos; if halftone paper prints are used, handle like line copy.)

I. Apply rules, borders, and other finishing touches.

    1. Methods of ruling

        a. Typesetting machines

INFORMATION SHEET

- b. Pen and ink
    - 1) Ruling pen lines on one sheet combined with type on another
    - 2) Variable line widths from hairline to 3 point
- c. Scribing lines
    - 1) Scribed or scratched through emulsion on film negative
    - 2) Scribing tools and line-up table recommended for accuracy
- d. Adhesive border tape
    - 1) Self-adhering tape in roll form
    - 2) Many different sizes and styles

2. Making mitered corners
    - a. Position tape on the paste-up with tape overlapped beyond the corner of box.
    - b. Use a straight edge and sharp X-Acto knife to cut carefully at a 45-degree angle.
    - c. Remove excess tape and burnish border into position.

J. Check paste-up against layout or dummy.

K. Lay protective sheet over page and burnish entire surface with roller.

L. Cover finished paste-up with tissue or tracing paper overlay and, if desired, protective cover sheet.

M. Recheck the paste-up, make sure it is clean and neat, and write instructions to printer; to get an idea of how the printed piece will appear, make a photocopy of the paste-up.

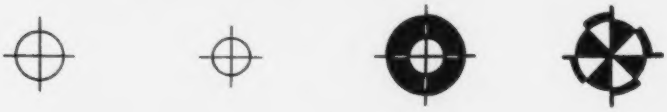
(NOTE: Rapid changes in graphic arts production have reduced the need for paste-up work by hand. Computers now make it possible to create and produce printed pieces right at your own desk. You can rearrange elements until you get your layout exactly the way you want it. What you see on your computer screen is what you will get on the printed page.)

INFORMATION SHEET

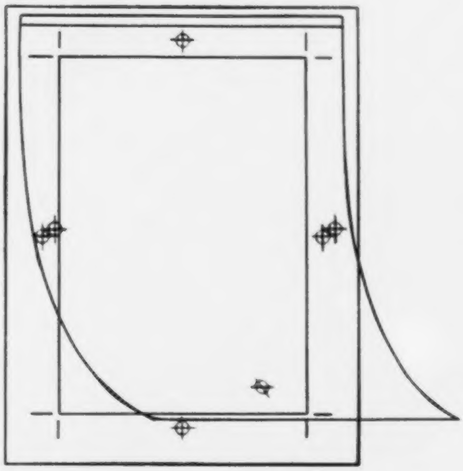
IV. Registration methods

A. Register marks

1. Small designs placed on artwork to control the accurate placement of one color over another



2. Duplicate designs are placed on overlays in alignment with copy or illustration boards.



Paste-Up with an Overlay Sheet

B. Register pin system

1. Common, accurate method of registering multiple exposures

2. Pins are placed on illustration board and each overlay has pre-punched holes which are placed on pins to align images.

3. Pin system is often carried through camera, stripping, and platemaking operations for accurate registration.

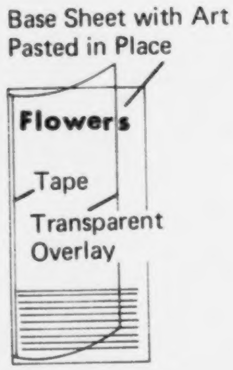
(NOTE: Paste-ups with numerous overlays must usually be taken apart to photograph, which makes the pin register system much quicker to use and also more accurate.)

INFORMATION SHEET

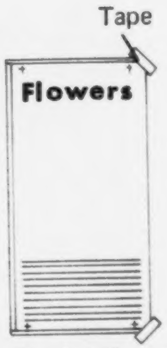
V. Use of clear acetate and ruby film

A. Preparing color overlays

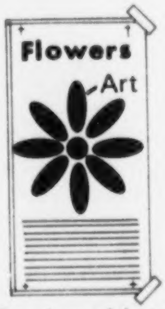
1. Paste the black (or major color) copy to the base sheet.
2. Paste each additional color in precise position on an acetate overlay, one representing each color.
3. Securely attach each overlay to the top of the base sheet with masking tape.
4. Use registration marks to ensure that all elements are kept in alignment.
5. Add color swatch showing the desired color to each overlay along with printing instructions.



Overlay taped to edge of base sheet.



Overlay flat to base sheet.



Overlay with art pasted in place.

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(NOTE: Where colors do not overlap, the color separations can be indicated on a single tissue overlay.)

B. Handling process color — Paste a photocopy of the original art in position on the base sheet and indicate that it is to be printed in process color.

(NOTE: It is not necessary to use an acetate overlay with process color. If there is line copy to be printed in color along with the full-color image, specify the color.)

INFORMATION SHEET

C. Preparing overlays for screen tints

1. Tape ruby film in register over paste-up.
2. Cut top layer of ruby film with X-Acto knife and peel away from clear film base all areas except those to be printed.
3. Prepare ruby film overlay for each screen tint area to be printed.

   (NOTE: When photographed, ruby film material reproduces as black, resulting in clear area on film negative.)

D. Preparing dropouts

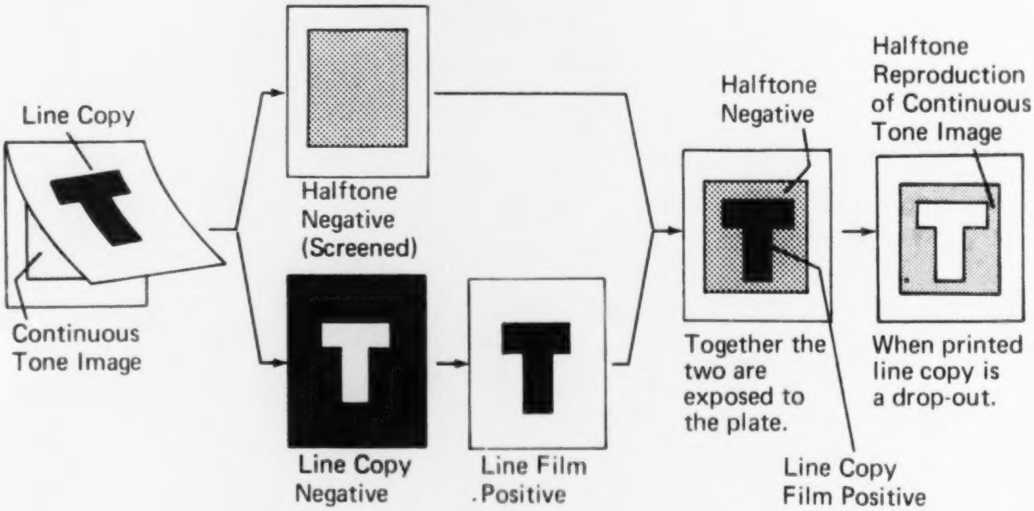
(NOTE: A dropout eliminates unwanted portions of a photo or drawing without damaging original copy.)

1. Tape ruby film in register over the artwork.

   (NOTE: Film negative can be used instead of original copy when preparing overlay of ruby film.)

2. Cut top layer of ruby film with X-Acto knife and peel away from clear film base area to be printed.

   (NOTE: Ruby film can be used as a mask and stripped up on the same flat with film negative.)


Line Copy
Continuous Tone Image
Halftone Negative (Screened)
Line Copy Negative
Line Film .Positive
Halftone Negative
Together the two are exposed to the plate.
Line Copy Film Positive
Halftone Reproduction of Continuous Tone Image
When printed line copy is a drop-out.

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INFORMATION SHEET

E. Preparing windows

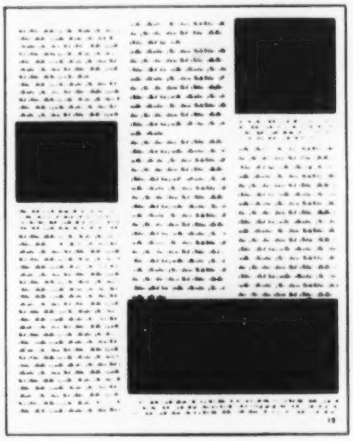
(NOTE: Use of ruby film is an accurate method of preparing windows for halftone negatives, particularly when line and halftone are very close together. Preparation of multiple windows in a row is more accurate and neater with ruby film than with the use of paste-up windows.)

1. Place guidelines on base sheet showing location of photographs.
2. Place ruby film over base sheet.

   (NOTE: Ruby film is transparent, allowing guidelines to be followed when cutting windows with knife.)
3. Cut ruby film material, then peel away from all areas except where photographs will appear.
4. Paste up line copy on base sheet.

   (NOTE: Both windows and line copy can be photographed in one exposure. Halftones of the photographs are then combined with the line negative on one flat. Separate flats are often necessary when line copy and photographs are very close together. In this instance, the halftones are stripped into the windows on one flat, while the line copy is stripped onto another flat. An exposure of each flat to the same plate is then made.)

FROM THIS . . .



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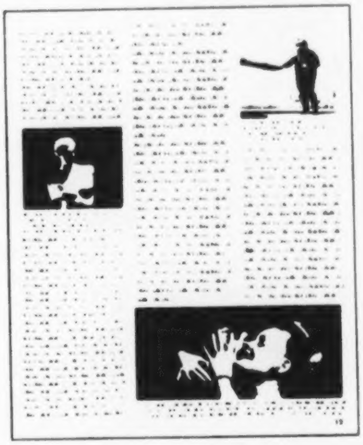

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INFORMATION SHEET

VI. Processing art for production

A. Cropping

1. Uses

   a. To make art fit a particular layout

   b. To eliminate unnecessary portions of art

   c. To change shape of art

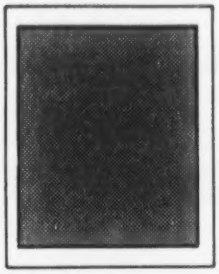
   d. To improve or emphasize desired portion of art

2. Method

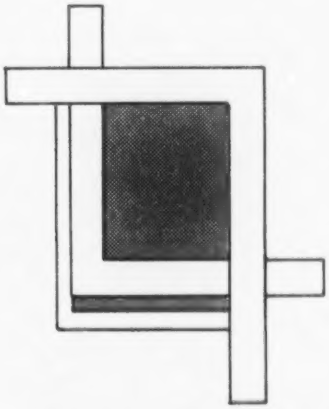
   a. Place cropper's Ls or strips of paper around art to mask out undesired portion.

   b. Mark where art is to be cropped with a grease pencil in the margin.

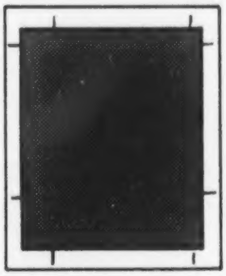
   (NOTE: Do not mark on the face of the original artwork.)



Original



Determining Desired Portion



Marked for Cropping

B. Scaling — Equivalent to copyfitting; art must be prepared to fit the size of the sheet or space on which it will be printed.

1. Enlarging

   (NOTE: Enlarging magnifies flaws in original copy.)

INFORMATION SHEET

2. Reducing

   (NOTE: Reducing shrinks fine lines or dot patterns that may end up too thin to print.)

3. Methods

   a. Using a proportional scale

      1) Measure copy.

      2) Measure available space.

      3) Find width of original copy on inner circle of proportional scale.

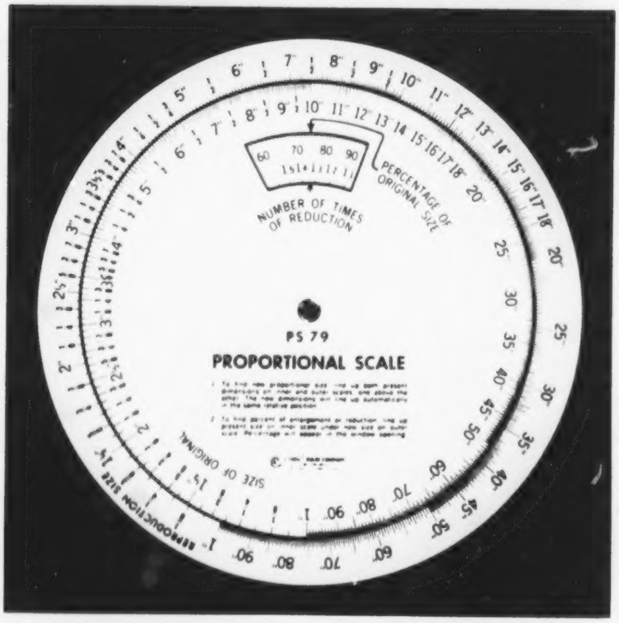
      4) Line up width of original with size wanted on outer circle.

      5) Read in window the reduction or enlargement percentage.

      6) Repeat this operation for height.

      7) Use lowest percentage figure when shooting copy if it is to be a reduction.

      8) Use highest percentage figure when shooting copy if it is to be an enlargement.



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INFORMATION SHEET

b. Using diagonal line

1) Draw rectangle or square the same size as original copy.

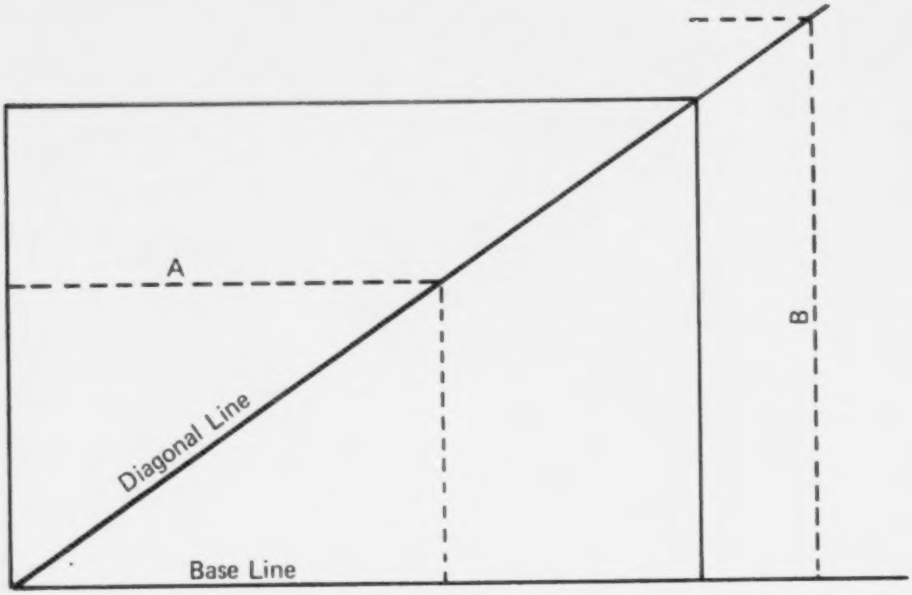
2) Draw diagonal line through corners.

3) Measure desired width of scaled copy on base line.

4) From this point, extend line upward until it crosses diagonal line.

5) Point of intersection will be new height of scaled copy.

(NOTE: Camera copy is often referred to as an enlargement even though it is actually a reduction, i.e., a .75 enlargement would really be 3/4 original size copy.)



(NOTE: The solid rectangle indicates the size of the original copy, 2¾"h x 4"w. Broken line A shows reduction in height to 1¾", and shows new width. Broken line B shows enlargement of width to 4¾", and shows new height.)

INFORMATION SHEET

c. Using the formula $\frac{W}{H} = \frac{w}{h}$

(NOTE: W = original width, w = width of enlargement or reduction, H = original height, h = height of enlargement or reduction.)

1) Substitute actual dimensions into formula.

(NOTE: Assume the original art is 8" wide by 4" high and the space available allows for a 3" height.)

$$\frac{W}{H} = \frac{w}{h} \text{ or } \frac{8}{4} = \frac{w}{3}$$

2) Cross multiply.

$$\frac{8}{4} = \frac{w}{3} \text{ or } 4w = 24$$

3) Solve the equation.

$$4w = 24 \text{ or } w = \frac{24}{4} \text{ or } w = 6"$$

4. Specify scaling instructions on a sticker indicating percentage at which copy should be reproduced: 100% for same size, less than 100% for reductions, and over 100% for enlargements.

(NOTE: Time and money can be saved by shooting all images to be done in the same percentage at one time, but ganging may cause some loss of quality if originals differ in contrast or density.)

VII. Kinds of imposition

(NOTE: When producing books, booklets, magazines and other such publications, several pages are ordinarily printed on a single sheet of paper. Each sheet may contain 4, 8, 16, 32 or 64 pages. After printing and folding, these pages must fall in the correct sequence. Each printed and folded sheet is called a signature. Imposition is dictated by press capacity, the number of pages involved, and folding and binding.)

A. Printed-one-side (P1S)

1. As name implies, prints one side of sheet with each pass through press.

2. Ganging P1S impositions allows more than one job to be printed at a time.

(NOTE: Sheet size, color, and quantity must be considered when ganging.)

INFORMATION SHEET

B. Sheet wise

1. Also referred to as *work and back*, *print and back*, and *front and back*.

2. Requires two plates, one to print front side of the press sheet, and one to print back.

   (NOTE: These may be multiples of two.)

3. Uses same gripper edge for both plates

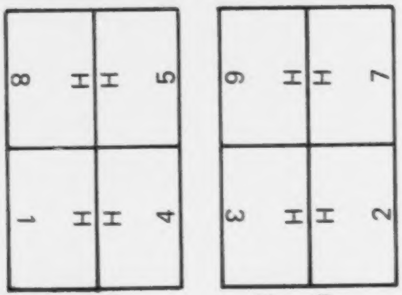


Plate One Plate Two

A One-Up, Sheet Wise, 8-Page Imposition

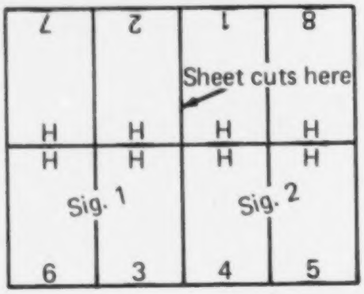
C. Work and turn

1. Also referred to as *print and turn*

2. All pages of signature are on one plate, outer form on one half and inner form on one half the plate.

3. Two complete copies per each sheet are produced.

4. Same gripper edge, both press runs

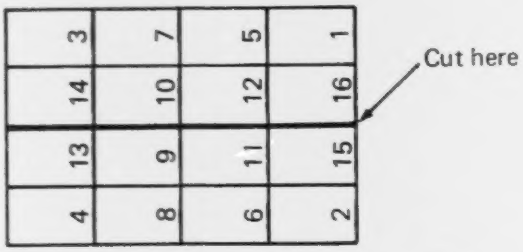


A One-Up, Work and Turn, 8-Page Imposition

INFORMATION SHEET

D. Work and tumble

1. Also referred to as *work and roll*, or *work and flop*.
2. All pages are on one plate.
3. Uses different gripper edge both runs.
4. Two complete copies, or multiples of two, per each sheet are produced.



3	7	5	1
14	10	12	16
13	9	11	15
4	8	6	2

A 16-Page Work and Tumble Imposition

VIII. Postal regulations

A. Standard size

1. Minimum — 3½" high x 5" long
2. Maximum — 6⅛" high x 11½" long
3. Length may not be more than 2.5 times or less than 1.3 times the height.
4. Pieces under minimum or over maximum are mailable with a surcharge.

B. Standard weight and thickness

1. Minimum — .007 inches thick with minimum size
2. Maximum — .25 inches thick with maximum size

C. Business reply cards

1. Permit must be obtained from U.S. Postal Service.
2. U.S. Postal Service specifications and negatives must be used.

INFORMATION SHEET

D. Third-class bulk mail

1. Annual fee charged
2. Special rates for certain nonprofit organizations

   EXAMPLES:Religious organizations, educational organizations
3. Prepaid postage required
4. Indicia — Imprinted designations used in mail pieces to denote payment of postage
5. Minimum — 200 pieces or 50 pounds of material of identical size and weight

   (NOTE: Contact your Postmaster or Customer Service Representative for more details. There is no charge for mail piece assessment services.)

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

JOB SHEET #1—PREPARE A PASTE UP

Name ____________________ Attempt Number ____

Date ____________________ Overall Rating ____

Evaluation criteria	Rating
• Student followed directions	____
• Student organized tools and materials	____
• Student taped base sheet square on table	____
• Student drew trim marks and folding lines on base sheet	____
• Student trimmed excess paper from elements	____
• Student pasted line copy and continuous tone copy in layout position	____
• Student applied borders, rules and finishing touches	____
• Student burnished entire sheet and covered paste-up with overlay	____

Introduction: Increasingly "paste-up" work is being done on computer screens through desktop publishing programs. Still, there are places where paste-ups are done manually so it will benefit students of graphic arts to actually do paste-up work by hand. This exercise will give you experience with the tools of paste-up.

Directions: When you are ready to complete this task, ask your instructor to observe the procedure and complete this form.

A. Equipment and materials

1. Drawing board or light table
2. T-square
3. Triangle
4. Line gauge or metal ruler
5. Masking or drawing tape
6. Grid or base sheets

JOB SHEET #1

7. Nonreproducing light blue pencil or pen
8. Fine-tipped black pen
9. Erasers
10. X-Acto knife
11. Trimboard
12. Waxer, rubber cement or other adhesives
13. Burnishing roller
14. Opaque white paint or correction fluid
15. Mechanical films
16. Tissue or tracing paper
17. Copy and layout furnished by instructor

B. Procedure

1. Look over layout or dummy.
2. Organize all tools and materials.
3. Using T-square as guide, tape base sheet square on table.
4. If not using preruled sheet, draw light blue (nonreproducible) guidelines on base sheet.
5. Using fine-tipped black pen, draw trim marks and dotted folding lines on base sheet.
6. Trim excess paper from elements.
7. Working from the top downward, paste down line copy on base sheet in position indicated on layout or dummy.

   (NOTE: Use T-square and triangle on each element as you place it to make sure it is straight and aligned.)

8. Position and paste down continuous-tone copy.

   (NOTE: If halftones are made as film negatives, they need only be indicated for size and position. Indicate position by drawing a red holding line or pasting down opaque red or black blockout film. If halftone paper prints are used, they are handled like line copy.)

JOB SHEET #1

9. Apply borders, rules and other finishing touches.

10. Lay protective sheet over page and burnish entire surface with roller.

11. Cover finished paste-up with tissue or tracing paper overlay.

12. Recheck the paste-up, make sure it is clean and neat, write instructions to printer.

    (NOTE: To get an idea of how the printed piece will appear, make a photocopy of the paste-up.)

13. Place name on back of paste-up and turn in for evaluation.

14. Clean work area and return equipment and materials to proper storage.

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

JOB SHEET #2—PREPARE OVERLAYS USING CLEAR ACETATE AND RUBY FILM

Name ______________________________ Attempt Number _____

Date ______________________________ Overall Rating _____

Evaluation criteria	**Rating**
• Student followed directions	_____
• Mechanical color overlays are in proper position, in register and correctly labeled	_____
• Screen tint overlays in proper position, ruby film carefully and accurately cut, and properly peeled from area to be screened	_____
• Dropouts in proper position, ruby film carefully and accurately cut, and properly peeled from area to be printed	_____
• Windows in proper position, square and aligned, ruby film cut carefully and accurately and peeled from all but photo positions	_____
• Student cleaned work area after submitting work to instructor	_____

Introduction: This exercise will acquaint the student with the precision necessary for a successful paste-up job using clear acetate and ruby film, common tools of the printing trade.

Directions: When you are ready to perform this task, ask your instructor to observe the procedure and complete this form.

A. Equipment and materials

1. Drawing board or light table
2. T-square
3. Triangle
4. Line gauge or metal ruler
5. Masking or drawing tape
6. Grid or base sheets

JOB SHEET #2

7. Nonreproducing light blue pencil or pen
8. Fine-tipped black pen
9. Register marks
10. X-Acto knife
11. Trimboard
12. Rubber cement or other adhesives
13. Burnishing roller
14. Clear acetate film and ruby film
15. Copy and layout furnished by instructor

B. Procedure

1. Mechanical color overlays
    a. Paste the black (or major color) copy to the base sheet. (Refer to Job Sheet #1, if necessary.)
    b. Cut, on trimboard, a piece of clear acetate to the same size as grid or base sheet for each additional color to be used.
    c. Tape acetate in register over base sheet.
    d. Using rubber cement or other adhesive, paste down elements to be printed in color on acetate in position indicated by layout or dummy.
    e. Give instructions on base sheet and each overlay showing the desired color.
    f. Check work for accuracy, then turn in for evaluation.
2. Screen tint overlays
    a. Cut on trimboard, a piece of ruby film to the same size as base sheet to be used.
    b. Tape ruby film, clear base side down in register over base sheet.

JOB SHEET #2

c. Using X-Acto knife, carefully outline are that is to be screened.

(CAUTION: Use extreme care to avoid cutting through ruby film base and damaging photo or illustration. A few practice cuts on ruby film scraps would be helpful in avoiding this type of mistake. Or, for added protection, place clear acetate between ruby film and grid or base sheet while cutting.)

d. Peel away all areas of ruby film except that which is to be screened.

e. Check work for accuracy then turn in for evaluation.

3. Dropouts

a. Cut, on trimboard, a piece of ruby film to the same size as photograph or illustration to be used.

b. Place ruby film, clear base side down, over photo and tape in place along top edge.

c. Using X-Acto knife, carefully outline area that is to be dropped out.

(CAUTION: Use extreme care to avoid cutting through ruby film base and damaging photo or illustration.)

d. Carefully peel away the portion of the ruby film from the area of the photo that will be printed.

e. Check work for accuracy, then turn in for evaluation.

4. Windows

a. Using T-square as guide, place base sheet on layout table and tape in place.

b. Mark, with light blue pencil, location of photographs on the base sheet.

c. Cut, on trimboard, a piece of ruby film to the same size as base sheet.

d. Place ruby film, clear base side down, over base sheet and tape in place along top edge.

JOB SHEET #2

e. Using T-square, triangle, and X-Acto knife, carefully cut locations of photographs in the ruby film.

(CAUTION: Use extreme care to avoid cutting through film base.)

f. Peel away all areas of ruby film except that which will be printed as photographs.

g. Check all windows on ruby film for squareness and proper location.

h. Turn in for evaluation.

i. Clean work area and return equipment and materials to proper storage.

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

JOB SHEET #3 --CROP A PHOTOGRAPH

Name ______________________________ Attempt Number _____

Date ______________________________ Overall Rating _____

Evaluation criteria	**Rating**
• Student followed directions	_____
• Horizontal and vertical crop marks accurately drawn in photo margins	_____

Introduction: Seldom will photos used in printing jobs be the correct size or proportion. This exercise will acquaint you with proper cropping methods to ensure the photo you are reproducing will fit the space you need and carry the proper instructions to the printer for ease of handling

Directions: When you are ready to perform this task, ask your instructor to observe the procedure and complete this form.

A. Equipment and materials

1. China marking pencil
2. Ruler or line gauge
3. T-square
4. Triangle
5. Sheet of translucent tracing paper
6. Four strips of paper approximately 3" x 8" or two cropper's Ls
7. Masking or drafting tape
8. Photograph furnished by instructor

JOB SHEET #3

B. Procedure

1. Using strips of paper or cropper's Ls to cover portions of photo, select portion of photo to be reproduced.
2. Using the ruler or line gauge and marking pencil, mark two sets of horizontal lines in the side margins of the photo, showing the desired area.
3. Mark two sets of vertical lines in the top and bottom margins of the photo showing the desired area.
4. Turn in for evaluation by instructor.

   (NOTE: Crop marks may be easily removed for future recropping.)
5. Clean work area and return equipment and materials to proper storage.

PASTE-UP PRINCIPLES AND PROCEDURES
UNIT IX

JOB SHEET #4—SCALE COPY

Name ______________________________ Attempt Number _____

Date ______________________________ Overall Rating _____

Evaluation criteria	Rating
• Student followed directions	_____
• Student scaled copy using a proportional scale	_____
• Student scaled copy using diagonal line method	_____
• Student scaled copy using formula method	_____
• Copy was accurately scaled according to art and layout provided	_____

Introduction: When pasting-up any print job it is imperative that one know how much copy space will be needed. This exercise will acquaint you with scaling copy using three different methods.

Directions: When you are ready to perform this task, ask your instructor to observe the procedure and complete this form.

A. Tools and materials

1. T-square
2. Triangle
3. Proportional scale (wheel)
4. Ruler or line gauge
5. Pencil or pen
6. Illustration or halftone copy and dummy or layout furnished by instructor
7. Several sheets of blank paper
8. Masking or drafting tape

JOB SHEET #4

B. Procedure

(NOTE: Scaling of copy will be accomplished using three different methods.)

1. Proportional scale method
   - a. Using ruler or line gauge, carefully measure copy for both width and height.
   - b. Measure space available on layout for copy.
   - c. Find the width of the copy to be scaled on the inner circle of the proportional scale.
   - e. Read, in the window of the proportional scale, the percentage of the desired reduction or enlargement.
   - f. Leave the scale set on this percentage and read on the outside circle what the reduced or enlarged height will be.
   - g. Write the percentage and the desired size on a sheet of paper, attach to the copy, and turn in for evaluation.
2. Diagonal line method
   - a. Using T-square, align sheet of paper straight on table and tape in place.
   - b. Using the T-square, triangle, and line gauge, draw outline form the same size as copy you are scaling.
   - c. Draw a diagonal line from the lower left corner through the upper right corner and continue the line across the page.
   - d. Measure the desired width across the bottom of the first rectangle, and from that point draw a vertical line until it intersects the diagonal line.
   - e. Measure the point of intersection; this will be the new height of scaled copy.
   - f. Write the desired size beside the diagonal line drawing and turn in to be evaluated.

JOB SHEET #4

3. Formula method

   a. Using ruler or line gauge, carefully measure copy for both width and height.

   b. Measure space available on layout for copy.

   c. Using the formula W/H = w/h, and substituting the width of copy, determine the new width and height of copy for layout.

   d. Write the new width and height and turn in to instructor for evaluation.

   e. Clean work area; return equipment and materials to proper storage.

PROOF PROCEDURES AND LEGAL CONSIDERATIONS
UNIT X

UNIT OBJECTIVE

After completion of this unit, the student should be able to proof copy and recognize the existence of legal restrictions on the printer. Competencies will be demonstrated by completing the assignment sheet and the unit test with a minimum score of 85 percent.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms related to proof procedures and legal considerations with their correct definitions.
2. Select true statements concerning reasons for pulling proofs.
3. Distinguish among types of proofs.
4. Match proofreaders' marks with their correct meanings.
5. Select true statements concerning reading, marking and correcting galley proofs.
6. Select true statements concerning legal restrictions.
7. Name the three elements of copyright notice.
8. Select true statements concerning the tests for judging the "fair use" of copyrighted material.
9. Select from a list items that may be copyrighted.
10. Select from a list items not eligible for copyright.
11. Select true statements concerning provisions for using photographs of people for advertising purposes.
12. Read and mark proof copy. (Assignment Sheet #1)

PROOF PROCEDURES AND LEGAL CONSIDERATIONS
UNIT X

INFORMATION SHEET

I. **Terms and definitions**

A. AA (author's alteration) — Any change in a proof not caused by typesetter's or printer's error; the author pays the charges

B. Copyright — Form of protection given by law to authors of literary, dramatic, musical, artistic, and other similar works

C. Counterfeiting — Making an imitation or copy of a genuine article (money, painting, etc.) with the intent to deceive

D. Fair use — A limitation on the exclusive rights of copyright owners

E. Infringement — Using copyrighted material in such a way as to reduce the profits that would otherwise be received by the copyright holder

F. Libel — A written or pictorial statement that conveys an unjustly unfavorable impression

G. Path line — A line drawn from error in proof to symbol for error in nearest margin

H. PE (printer's error) — Any change made because of printer or typesetter error

(NOTE: The designation TA [typesetter alteration] may also be used.)

I. Pornography — Writing or illustrations considered obscene

J. Proof — A trial reproduction of type and illustrations to reveal errors or flaws

K. Proof OK — Customer signature approving a proof and authorizing the job to advance to the next stage

L. Proofreader marks — Symbols and abbreviations used by proofreaders to indicate corrections necessary in the proof

M. Proofreading — Reading copy on a proof and marking any errors or flaws for correction

II. **Reasons for pulling proofs**

A. Every job should be checked and double-checked by both the printer and customer — this is the only way to verify that typesetting, the paste-up, negatives, flats and plates are accurate and complete.

(NOTE: Inquire about anything that seems wrong.)

INFORMATION SHEET

B. Proofs help determine who is responsible for mistakes and should pay for correcting them.

(NOTE: Printers and customers each pay for their own mistakes. Typesetters accept responsibility for their errors, but charge for time spent correcting errors that were not detected in original copy or remaking lines for customers who have merely changed their minds.)

C. After examining a proof, the customer decides whether to approve it or ask for another proof; if it is OK'd, the customer authorizes the next stage in the production sequence.

(NOTE: Approved, signed and dated proofs should be kept as a record.)

III. Types of proofs

A. Galley proof — When copy has been set into type, "galleys" are read to detect and eliminate errors made by the typesetter.

(NOTE: Before the proof is sent to the customer it is first proofread in the shop. This is the time to make changes, if needed; if made later, they will be more costly.)

1. Visual editing — Operator reads copy on computer screen, checking for errors, changes, or omissions, and by use of a cursor, locates and corrects the copy.

2. Cold type composition

   a. Phototypesetting or microcomputer shops make photocopies or plain bond, laser printouts of galley proofs and corrections are marked on these paper positives.

   b. Photocopies are made of typewritten, hand-lettered and transfer lettered work and used for proofreading and marking.

3. Hot type composition

   a. Line-casting and foundry type forms are inked and proof is pulled on proof press.

   b. Proof is pulled on newsprint paper larger than type to leave room for marking corrections.

4. Revised — New mistakes can slip in when old ones are corrected — revised galley proofs provide protection for printers and customers by permitting detection of errors made during corrections before material has been put in page form.

INFORMATION SHEET

5. Duplicate — Some customers require duplicate sets of galley proofs: one for marking corrections (on white paper) and the other to be cut apart and pasted on layout sheets (sometimes on colored stock).

B. Page proof — Provides a chance to check if the material is positioned and aligned properly, if headlines are with the right text, if captions are with the correct picture, and so on.

    1. A photocopier is often used to make a proof of a paste-up.

    2. Proofs of paste-ups are necessary

        a. To prevent handling the original paste-up while verifying its accuracy

        b. To eliminate the distraction of guidelines and trimmed edges of pasted pieces so that image straightness and spacing can be checked

        c. To provide a file copy of the page

    3. Any corrections needed can be marked on the page proof.

C. Blueline or brownline proof — Prepress, photographic replica in blue or brown of all pages in a printed job that is used if there are overlays, halftones, reverses, tints or anything that will not show on a photocopy.

    1. Check to see that everything was stripped correctly.

    2. Proof illustrations.

        a. Check dimensions; negatives must fit their space.

        b. Look for imperfections like photos with jagged edges, unsightly scratches, blemishes and spots.

        c. Examine content; make sure photo is cropped and scaled properly and faces in proper direction.

        d. Check if halftone exposure is too gray or has too much contrast.

        e. Watch for paper clip marks on edge, faint handwriting on surfaces, or cracks from folded photos.

    3. Stick pages together back-to-back for two-sided jobs, fold, trim, staple, and check page sequence.

        (NOTE: Don't leave anything to chance.)

    4. When proofing simple two-color jobs, color differences can be indicated by varying exposure time.

INFORMATION SHEET

5. Write instructions directly on proof.

D. Color proof — Intended primarily for color separations

(NOTE: Overlay methods such as 3M's Color Key, laminated overlays like DuPont's Cromalin, and progressive proofs [progs], are examples of traditional color proofing systems.)

1. Color proofing materials are expensive.

2. Costly separations may be avoided by use of electronic soft copy previewing; computers and scanners allow the operator to manipulate the color image.

E. Press proof — Proof made on press using the plates, paper, and ink specified for the job

1. Costly in both time and money

2. Used primarily for premium four-color printing jobs

IV. **Proofreaders' marks** (Transparency 1)

(NOTE: Proofreader's marks are often called a printer's shorthand.)

A. — Delete

B. — Delete and close up

C. — Turn inverted letter

D. ⁀ — Close up

E. # — Insert space

F. √√√ — Equalize spacing

G. less# — Reduce spacing

H. ¶ — Paragraph

I. □ — Indent one em

J. [— Move to left

K.] — Move to right

L. ⊔ — Lower

M. ⊓ — Elevate

INFORMATION SHEET

N. ^ — Insert marginal addition
O. X — Broken letter
P. ⊥ — Push down space
Q. = — Straighten
R. || — Align type
S. $\underset{,}{\wedge}$ — Insert comma
T. $\overset{,}{\vee}$ — Insert apostrophe
U. $\overset{,,}{\vee}$ — Insert quotes
V. (/) — Insert parentheses
W. [/] — Insert brackets
X. $\underset{3}{\wedge}$ — Insert inferior figure
Y. $\overset{3}{\vee}$ — Insert superior figure
Z. =/ — Hyphen
AA. |em| — Em dash
BB. |en| — En dash
CC. ;/ — Insert semicolon
DD. :/ — Insert colon
EE. ⊙ — Insert period
FF. ?/ — Insert question mark
GG. (?) — Query to author
HH. ⌒ — Use ligature
II. (sp) — Spell out
JJ. tr — Transpose
KK. Set 1, 2, 3 — In this order
LL. wf — Wrong font
MM. bf — Set in bold face type

INFORMATION SHEET

NN. *rom* — Set in roman type

OO. *ital* — Set in italic type

PP. *caps* — Set in capitals

QQ. *sc* — Set in small capitals

RR. *lc* — Set in lower case

SS. *B̸* — Lowercase letter

TT. *stet* — Let it stand

UU. *no ¶* — Run in same paragraph

VV. *ld>* — Insert lead between lines

WW. *hr#* — Hair space between letters

XX. *out sc* — Out—see copy

YY. *#* — End of copy

V. Reading, marking and correcting galley proofs

A. Read — To discover errors and flaws.

1. Check spelling.
2. Check grammar.
3. Check punctuation.
4. Check capitalization.
5. Check figures.
6. Check indentions and paragraphs.
7. Check mark-up instructions for match to typeset copy.

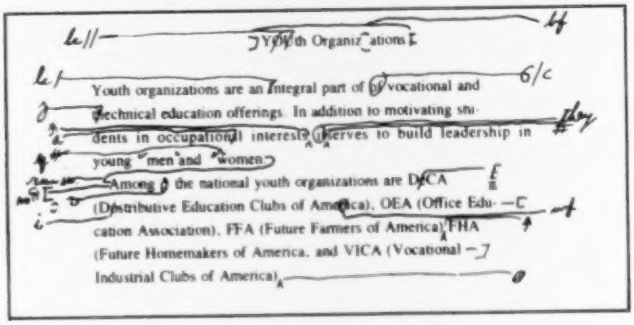
(NOTE: Proofreading sometimes is done by two people, a copyholder holds the copy and reads the original manuscript aloud to the proofreader who watches the proof closely for errors and marks necessary corrections.)

INFORMATION SHEET

B. Mark — To denote each error on proof.

(NOTE: Make sure corrections are legible.)

1. Path line method of marking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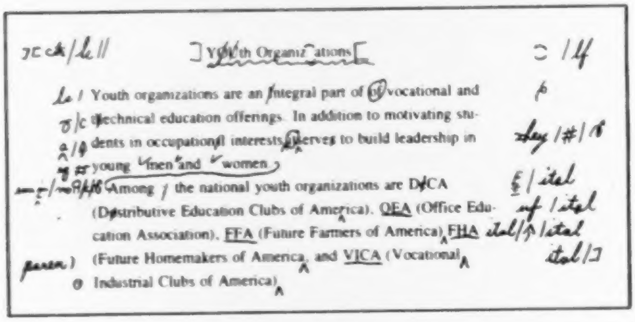
Youth Organiz ations

Youth organizations are an integral part of of vocational and
technical education offerings. In addition to motivating stu-
dents in occupational interests serves to build leadership in
young men and women
Among the national youth organizations are DECA
(Distributive Education Clubs of America), OEA (Office Edu-
cation Association), FFA (Future Farmers of America) FHA
(Future Homemakers of America, and VICA (Vocational
Industrial Clubs of America)

2. Corresponding margin marks method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Youth Organiz ations

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Industrial Clubs of America)

C. Correct

1. Cold type composition

   a. Reset a whole word, line or paragraph, not just a character.

   b. Check to be sure new type is a perfect match.

BEST COPY AVAILABLE

INFORMATION SHEET

c. Using light table, paste correction over error; then burnish it well.

(NOTE: If layout table is used, use T-square to check correction for straightness.)

2. Hot type composition

a. Reset complete line.

b. Exchange corrected lines for lines with errors.

VI. Legal restrictions

A. Considerations for the printer and customer

1. Printers and customers must be on guard to prevent becoming involved in legal matters relating to copyrighting, counterfeiting and pornography.

2. Generally speaking, a person is libeled when he or she is identified in a publication that defames (damages) him or her by exposing him or her to public hatred, contempt, or ridicule.

3. Photographs can be defamatory when they cast a "false light" on an individual or group.

4. Since law changes rapidly, continued reading in this area is necessary.

B. U.S. copyright law

1. A new copyright law went into effect on January 1, 1978.

2. The purpose of copyright is to secure for the creator of the material all the benefits earned by creating it.

3. The U.S. law now parallels the international agreement followed by most of the leading countries of the world.

4. Work copyrighted after January 1, 1978, is protected for the author's lifetime plus 50 years.

5. "Works made for hire" have copyright protection 75 years from the first year of publication or 100 years from the year of creation, whichever is shorter.

6. The new copyright law defines "fair use" of material and "infringement of copyright."

INFORMATION SHEET

VII. Elements of copyright notice

A. The word "copyright", the abbreviation "copr.," or the symbol ©

B. The name of the copyright owner

C. The year of publication

(NOTE: To establish an exact date of copyright, fill out a form available from the Copyright Office, pay a small fee, and send copies of the copyrighted work for official registration. U.S. copyright laws are administered by the Register of Copyrights, Library of Congress, Washington DC 20559.)

VIII. Tests for judging the "fair use" of copyrighted material

A. The purpose and character of the use

EXAMPLES:The use for profit; for educational purposes

B. The nature of the copyrighted works

C. The amount of material used in relation to the total material

D. The effect of the use on the commercial market value of the material

IX. Items that may be copyrighted

A. Books

B. Brochures

C. Catalogs

D. Leaflets

E. Pamphlets

F. Greeting cards

G. Single pages

H. Newspapers

I. Magazines

J. Maps

K. Drawings

L. Paintings

INFORMATION SHEET

M. Photographs

N. Musical compositions

O. Labels

P. Film strips

Q. Motion pictures

X. Items not eligible for copyright

A. Names

B. Titles

C. Slogans

D. Familiar symbols

E. Familiar designs

F. Time cards

G. Account books

H. Calendars

I. Rulers

J. Sporting event schedules

K. Graph paper

L. Material from U.S. Government

XI. Provisions for using photographs of people for advertising purposes

A. Written permission (model release) must be obtained if faces are recognizable.

B. In using pictures of children (minors), written permission of legal guardian must be obtained.

C. Failure to obtain written permission may result in claim of invasion of privacy and demand for payment.

PROOF PROCEDURES AND LEGAL CONSIDERATIONS
UNIT X

ASSIGNMENT SHEET #1—READ AND MARK PROOF COPY

Name ______________________________ Overall Rating _____

Evaluation Criteria	**Rating**
• Student followed directions	_____
• Student marked copy with appropriate proofreader's marks to the satisfaction of the instructor	_____

Introduction: Proofreading is an important skill and step in the production process. This exercise will give the student the opportunity to read and mark copy using the path line method.

Directions: Read and mark the copy below with appropriate proofreaders' marks, using the path line method.

Proofreading is the art of checking cop y fore errors and indicating the corrections to be made. Ideally, proofreading is done by two peoples. One is the *copy holder* who reads aloud fromthe original copy to the proof reader. The other, called the *proofreader*, follows the reading proof and marks any corrections necessary.

Sometimes, however, the proofreader werks alone, checking the original copy against the proof.

Proofreaders marks (also *proof marks*) are the symbols used bythe proofreader to indicate the corrections necessary *in* the proof. Examples of the msot commonly used proof marks are shown on the following page